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COCHITI PUEBLO—CORPS OF ENGINEERS DAM PROJECT

HEARING

BEFORE THE

SELECT COMMITTEE ON INDIAN AFFAIRS UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

SECOND SESSION

ON

TO REAUTHORIZE CERTAIN INDIAN EDUCATIONAL PROGRAMS

MARCH 15, 1988
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CONTENTS

Page

Statements:
- Bingaman, Hon. Jeff, U.S. Senator from New Mexico 2
- Bliesner, Ron D., vice president, Keller-Bliesner Engineering, Logan, UT .. 16
- Bowannie, John, Governor, Pueblo de Cochiti, Cochiti, NM 6
- Domenici, Hon. Pete V., U.S. Senator from New Mexico 3
- Hatch, Maj. Gen. Henry J., Director of Civil Works, Headquarters U.S. Army Corps of Engineers, Washington, DC 13
- Inouye, Hon. Daniel K., U.S. Senator from Hawaii, chairman, Select Committee on Indian Affairs 1

APPENDIX

Prepared statements:
- Bingaman, Hon. Jeff, U.S. Senator from New Mexico 21
- Bliesner, Ron D., (with attachments) 158
- Bowannie, John (with attachments) 29
- Domenici, Hon. Pete V., U.S. Senator from New Mexico (with attachments) 24
- Hatch, Maj. Gen. Henry J. (with reconnaissance report) 111
- Richardson, Hon. Bill, U.S. Representative from New Mexico 157

Additional material submitted for the record:
- A Short History of Cochiti Dam Seepage Problem and Estimated Costs and Damages 165
- Review of U.S. Army Corps of Engineers report entitled: Reconnaissance Report High Ground Water Problem on Pueblo de Cochiti Lands, Below Cochiti Dam, New Mexico 174

Letters to:
- Arquero, Sam, Governor, Cochiti Pueblo, Cochiti, NM dated Dec. 31, 1986 (with attachments) 182
- Ashby, Philp R., Albuquerque, NM dated Jan. 25, 1979 and Aug. 6, 1979 185
- Bowannie, John, Governor, Cochiti Pueblo, Cochiti, NM (with attachments) 189
- Coombs, Jasper, chief, Engineering Division, Department of the Army Corps of Engineers, Albuquerque, NM dated June 26, 1979 (with well measurements) 190
- Cordero, Fred, Governor, Cochiti Pueblo, Cochiti, NM dated Jan. 13, 1977 (with attachments) 194
- Domenici, Hon. Pete V., U.S. Senator from New Mexico dated Aug. 11, 1978 and April 9, 1988 197
- Gilmer, Jesse B., El Paso, TX dated Dec. 10, 1986 200
- Gross, Michael P., Santa Fe, NM dated Apr. 10, 1987 (with attachments) 201
- Herrera, Issac P., Governor, Cochiti Pueblo, Cochiti, NM dated Jan. 11, 1979 203
- Leonard, Col. Richard E., Albuquerque, NM dated Jan. 11, 1977 (with attachments) 205
- Paytiamo, Stanley, Governor, Acoma Pueblo, Acomita, NM dated Nov. 9, 1977 209
- Quintana, Geronimo, Governor, Cochiti Pueblo, Cochiti, NM dated June 25, 1976, Aug. 25, 1976, and Oct. 29, 1976 (with attachments) 210
- Quintana, Joe A., Governor, Cochiti Pueblo, Cochiti, NM dated Aug. 17, 1978 and Jan. 29, 1979 219
- Roth, Bernard J., Col. CE, District Engineer, Albuquerque, NM dated Apr. 11, 1980 221

Page

Letters to—Continued
Schmitt, Hon. Harrison H., former U.S. Senator from New Mexico dated Jan. 10, 1979 224
Shannon, F. D., Land Management Realty Officer, United Pueblos Agency, Bureau of Indian Affairs, Albuquerque, NM dated Feb. 25, 1965 226
Stevens, Mark J., Acting Superintendent, Land Operations Engineering, U.S. Department of the Interior, Bureau of Indian Affairs, Southern Pueblos Agency, Albuquerque, NM dated June 22, 1977 228

COCHITI PUEBLO—CORPS OF ENGINEERS DAM PROJECT

TUESDAY, MARCH 15, 1988

U.S. SENATE
SELECT COMMITTEE ON INDIAN AFFAIRS
Washington, DC

The committee met, pursuant to notice, at 2:40 p.m., in room 485, Russell Senate Office Building, Hon. Daniel K. Inouye (chairman of the committee) presiding.

Present: Senator Inouye.

Staff present: Alan Parker, Patricia Zell, and Mary Little.

STATEMENT OF HON. DANIEL K. INOUYE, U.S. SENATOR FROM HAWAII, CHAIRMAN, SELECT COMMITTEE ON INDIAN AFFAIRS

The CHAIRMAN. The hearing will please come to order.

I would like to welcome all of you to this oversight hearing on the problem of seepage from the Cochiti Dam, a U.S. Army Corps of Engineers dam project, which is located on the Cochiti Pueblo in New Mexico. We are here this afternoon to examine the facts and circumstances surrounding the construction of a dam by the Corps of Engineers on the Cochiti Pueblo Reservation. The dam, which was not sought by the Pueblo, was constructed for the purpose of flood and sediment control. Although the Army paid the Pueblo $145,200 for a perpetual easement, due to a very serious seepage problem, approximately 800 acres of agricultural and bosque lands traditionally farmed by the Pueblo have been rendered virtually useless.

In September 1987, during my tour of the southwest Indian country, I personally inspected the Cochiti Dam site and toured the lands affected by the seepage. At that time, I met with members of the Pueblo and representatives of the Corps of Engineers, and was informed that all parties were supportive of pursuing settlement negotiations, which were to begin immediately upon the completion of a reconnaissance study that was currently underway by the Corps. However, the Corps delayed commencement of the negotiations with the tribe and did not provide the Pueblo with the reconnaissance report, as was initially promised in October 1987. I understand that the report has since been completed and was approved by the Corps as an official document about 2 weeks ago.

I am informed that the Corps, based on the 1988 continuing resolution authorizing the expenditure of funds to begin work on the design of a drainage system for Cochiti Dam, is prepared to enter

into meaningful negotiations with the Pueblo to find a mutually acceptable design for the repair of the dam.

Given the continued damage to the Pueblo's agricultural and other lands, and the serious threat which is posed to the very existence of the Pueblo, I believe this committee's oversight of the negotiations process is warranted. This afternoon we intend to determine precisely what is the Corps' intention regarding an immediate solution to this most critical matter and the position of the Cochiti Pueblo.

We have here with us today, our distinguished colleague from New Mexico, Jeff Bingaman, and also his colleague, Mr. Domenici, to present comments on behalf of constituents from the Cochiti Pueblo.

I would like to first call upon my colleague, the Senator from New Mexico, Jeff Bingaman.

STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

Senator BINGAMAN. Mr. Chairman, thank you for agreeing to hold this hearing and for taking a very keen and active interest in this serious problem. As you know, high ground water has plagued the people of Cochiti Pueblo in my home State of New Mexico for several years. I'm sure Governor Bowannie, who will speak later, and the other members of the tribal council, join me in expressing appreciation to you.

Today's hearing is of particular importance because the Cochiti Pueblo has waited many years for a solution to its groundwater problem. Unfortunately, the Corps of Engineers seemingly has postponed finding a solution, and has offered excuse after excuse for delaying action.

Permit to outline the need for this hearing and the need for an immediate solution.

In 1965, the Corps, without a request from the Cochiti Pueblo, began construction of a dam on the Rio Grande River just north of Cochiti Pueblo. The Corps previously had purchased an easement for the dam from the Cochiti Pueblo for $150,000.

Since the dam's completion in 1976, there has been a constant destruction of land that previously had been farmed by the people of Cochiti since pre-Spanish times. The Pueblo's only agricultural land, nearly 800 acres lying directly below the dam, has been rendered virtually useless because of water storage and extensive seepage from under the dam. The resulting high water table has left standing ponds and marshes, as you indicated, Mr. Chairman. I am sure you saw much of that during your trip to our State several months ago. Similar damage has occurred to a lesser, but still serious degree, on land within the nearby town of Pena Blanca, and also on the tribal land of the Santo Domingo Pueblo. The livelihood of many of the people who have depended historically on farming has been seriously damaged or destroyed.

Without going into detail, let me just indicate the Pueblo filed suit in Federal District Court more than 1 year ago in an effort to urge Corps attention to this situation. The suit has been stayed pending the outcome of negotiations between the Corps and the

Pueblo of Cochiti. In a meeting that Senator Domenici and I had with the Pueblo and the Corps on Oct. 6, 1987, the Corps agreed to continue negotiations and if possible, to settle their dispute out of court.

In an effort to speed negotiations so that a solution to the problem could be agreed upon, I introduced an amendment, last year which Senator Domenici and you co-sponsored, to the 1988 Continuing Resolution. The amendment directed the Corps to use up to $750,000 of its already appropriated funds for the preparation of engineering and design plans to remove the surface waters from the Cochiti Pueblo's agricultural lands. The expenditure by the Corps is conditioned, among other things, on the ability of the Corps and the Cochiti Pueblo Tribal Council to reach a written settlement or agreement as to how this will be accomplished.

Previous to the adoption of the amendment and pursuant to a directive of Congress, the Corps had been studying possible solutions to the dam seepage problem. Mr. Chairman, you made reference to the Corps' reconnaissance report, which just recently has been submitted to Congress. As I understand it, this is now a final report, approved by the Corps in Washington.

Meetings as recent as this afternoon, are ongoing between the Corps, the Pueblo Council, and the Governor of Cochiti in an attempt to identify a course of action that will lead to the prompt resolution of this problem. I believe that at long last we are beginning to make real progress.

I Nonetheless, believe it is essential that your committee continue to monitor this matter. I know Senator Domenici and I will do that as well, even though I believe there is a sincere desire on the part of all concerned to move forward. As you know, we have many things pressing an our agenda. I am sure that is true with the Corps of Engineers as well. We simply need to ensure that resolution of this matter remains a high priority, and continues to get the attention in the next few months that it deserves.

The people of Cochiti have waited more than 12 years to find a solution to this problem. I think there is no question that 12 years is too long a period and that we need expeditious action. Your committee's interest in this matter, and your personal attention to it, have been major factors in moving this forward, so again, I thank you.

[Prepared statement of Senator Bingaman appears in appendix.]

The CHAIRMAN. I wish to assure you, sir, and your constituents of the Cochiti Pueblo, that this matter is of the highest priority.

I am now pleased to call upon my dear friend, Pete Dominici, the senior U.S. Senator from New Mexico.

STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

Senator DOMENICI. Thank you, Mr. Chairman.

Mr. Chairman, I think Senator Bingaman has given the history of this situation quite well, and let me start where I was going to finish in my brief remarks, and just put it this way, the people of Cochiti have suffered with this problem for a long time. It is a problem that developed from a Federal investment. And it's only

fair that the Congress and the Corps of Engineers make every effort to rectify the situation that has developed.

Now having said that, Mr. Chairman, I have had the opportunity, and I'm sure Senator Bingaman has, within the last 48 hours to meet once again—it's certainly not the first time for either of us, with the leaders of the Cochiti Indians. We have had an opportunity, personally and through our staff, to meet with General Hatch and the Chief Planner from Albuquerque prior to this meeting here in Washington, DC.

The first thing that I would like to do is call to your attention, Mr. Chairman, the language that was contained in the continuing resolution. I've attached to my statement, and I'm sure that you will have it available. Yesterday as we talked together with the Governor, Governor Bowannie, and members of the Cochiti Council and other people from Cochiti, we didn't have the Corps present, because it just wasn't arranged. They came to me as constituents. They brought with them their expert engineer, and I think by the time the day ended, I understood where the hangup was. And I'm very hopeful that because of your genuine interest in bringing us together here, that we will not leave Washington today without an understanding that clarifies the Corps position and satisfies the Indian people's request versus the expenditure of $50,000 for planning and $700,000 for design as contemplated by the appropriation.

Rather than read my statement, let me tell you what I understand, Mr. Chairman, that they should be telling you as to the substance of this problem and its resolution. Now, obviously, our Indian people know the significance of a hearing, and they know the significance of a Chairman's genuine interest. So they will probably want to talk about a number of things.

But in essence, Mr. Chairman, the problem that we have had is in the interpretation of what kind of agreement is contemplated between the Cochiti Indians and the Corps of Engineers for the use of the $50,000 in planning and the $700,000 for engineering and design. And I believe they have arrived at a satisfactory conclusion, and they will probably share it with you, and share a few of the problems, like to what extent may the Indian people use their own outside experts. That may still be a problem. But let me quickly tell you the way I understand it.

There is no way that the Indian people, our constituents the Cochitis, can enter into any kind of comprehensive agreement regarding this settlement of this situation, because we must first do the engineering and design work, including as I understand it, passing judgment on what the design ought to cover. I mean they want to decide among themselves what the best approach to the use of the $700,000 is, to arrive at some conclusions that lead to cost improvements and possible settlements in the future. They're going to need to do some construction, infield test construction. And I hope before you are finished, that you would assure them, and perhaps ask the Corps, if they agree that some infield test construction is contemplated within the definition of design. Because their experts say, and I believe the Corps will agree, that they must do some of that within that $700,000. As a matter of fact, I think they will tell you that they got the number of $700,000 from their own engineers

in concert with the Corps, and some of that kind of field construction work was contemplated.

So in essence, we want to urge that the Corps of Engineers and the Cochiti Pueblo enter into an agreement regarding the use of this $700,000, that will permit the Indian people and the Corps to evaluate the problem and come up with some cost estimates, and that can be an agreement. We don't have to have a comprehensive agreement regarding the entire solution to the problem, but rather one on this planning and design, that is satisfactory to the Indian people, their experts, and the Corps, that it will give us an idea of how we might solve some or all of the problems, and give us some real engineering data and some cost estimates. As I understand it, that's what needs to be clarified. That that can be an agreement, and you don't have to have a more comprehensive one, and you can spend this money, the money that we appropriated with your assistance, for that purpose.

Now, Mr. Chairman, this has gone on for a long time. There is litigation pending. It is a very unique situation. We have some like it in the United States. We have not had one where the United States has been held liable before, but in this particular case, the Court denied summary judgment, and so we've been trying to negotiate a settlement. It is not possible yet, and I think our Indian people, including the Governor, who is here, quite properly say it's impossible to talk about settlement, land swaps and the like, until we know the nature of the problem, the extent of it, and the possible costs, and the possible cures. And that's what we hope will come out of this meeting. We think General Hatch now concurs that there can be a scope of an agreement that can be entered into regarding the use of this money that both sides could agree would be meaningful, helpful, and lead to a resolution.

So I want to join with my colleague, Senator Bingaman, and thank you for your interest. Your interest in Indian Affairs in our country is indeed, for all of us, gives us a great deal of hope. And we hope you will remain interested. We think we have some very serious problems. Not only this one, we have some serious ones in the fields of education that I hope one of these days we can mutually address as part of the major bringing of our Indian people into an opportunity society that you and I have been permitted to live in.

Thank you very much, Mr. Chairman.

[Prepared statement of Senator Domenici appears in appendix.]

The CHAIRMAN. I thank you very much, Senator Domenici. I am certain that your constituents, the Cochitis, realize how fortunate they are in having a united Senate delegation supporting them, and committed to their cause. As we know, often times, a Senate delegation can be divided on an issue affecting constituents, but in this case I can assure the Cochitis that from both Senators, I receive only support. And with that spirit, I am certain, as Senator Domenici has stated, by the end of this day, something positive should be forthcoming.

Senator DOMENICI. Can I make my statement a part of the record.

The CHAIRMAN. Without objection, so ordered.

I thank you both, very much.

Senator BINGAMAN. Thank you.

The CHAIRMAN. Our next witness is the Honorable John Bowannie, the Governor of the Pueblo de Cochiti of New Mexico. Governor Bowannie will be accompanied by Mr. Mike Gross, attorney.

Governor BOWANNIE. Good afternoon, Mr. Chairman.

The CHAIRMAN. Governor, it is good to see you again, sir.

STATEMENT OF HON. JOHN BOWANNIE, GOVERNOR, PUEBLO DE COCHITI, COCHITI, NM, ACCOMPANIED BY MR. MIKE GROSS AND MR. FRED CORDERO

Governor BOWANNIE. Mr. Chairman, my name is John M. Bowannie and I am the Governor of the Pueblo de Cochiti of New Mexico.

Please allow me to introduce my delegates who are here with me today. Mr. Fred Cordero, former Governor and tribal councilman.

The CHAIRMAN. Welcome, Mr. Cordero.

Governor BOWANNIE. J. F. Romero, former Governor and tribal councilman.

The CHAIRMAN. Welcome, sir.

Governor BOWANNIE. Joe H. Herrera, former Governor and tribal councilman; Joseph U. Quintana, former Lieutenant Governor and tribal councilman; Ramus Suina, former Lieutenant Governor and tribal councilman; Mr. Regis Pecos, executive director of the Office of Indian Affairs in Santa Fe, NM; Matthew Pecos, former Lieutenant Fiscale and tribal councilman; Richard Pecos, natural resource manager for the Pueblo Administration.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Gentlemen, it is a pleasure having you with us, and I think on this historic moment, we may see some results.

Governor BOWANNIE. Mr. Chairman, the Pueblo's attorneys, Mr. Jerry C. Straus of Washington, DC, Mr. Michael P. Gross of Santa Fe, NM, are also here with us today. And also, Mr. Ron D. Bliesner, of Keller, Bliesner Engineering from Logan, UT. Our attorneys and Mr. Bliesner will be available for any legal or technical questions that the committee may have. And Mr. Bliesner will also make a brief statement later on.

On behalf of the Pueblo I want to thank you for convening this hearing here today on behalf of the Pueblo de Cochiti. I also want to thank Senators Domenici and Bingaman, and Congressman Richardson, these gentlemen have assisted the Pueblo for many years on this matter.

Mr. Chairman, as Governor of the Pueblo de Cochiti, I am here as spokesman for all the people to tell you that in addition to the terrible damage already done to our Pueblo by the construction of Cochiti Dam, we face incremental, unanticipated damage which eventually, if it hasn't already, threaten the very existence of our Pueblo. Unless this seepage problem is solved, and hopefully soon, its migration further downstream will create additional problems for the Pueblo. I am afraid we face the literal and total destruction of our useful land base, and with it everything that makes us Cochitis. What we are talking about here is the possible destruction of our nation, a nation which has endured for thousands of years.

As you know, Mr. Chairman, in 1975 the construction of the Cochiti Dam was completed. And after the gates were closed, an artificial lake known as Cochiti Lake was created. We, the Pueblo, did not want this project. This project has brought many outsiders to our reservation, and as a result has deprived us of present use of approximately 4,000 acres of our ancestral homelands. We were told at that time, however, that we had to agree to grant the Corps of Engineers a perpetual easement for the construction of this dam. If not, we were told that the land will be taken from us, in fee simple, without our consent, through condemnation proceedings.

Mr. Chairman, I must tell you in all honesty that the problems we have feared have all come to pass. The desecration of our land has not led to economic prosperity, but has gravely interfered with the maintenance of our traditions which are central to our existence as Cochiti Indians.

The tranquillity of our Pueblo has been disturbed by a large influx of visitors, over a million per year, who come up to Cochiti Lake to use the recreational facilities. They have brought with them drugs, liquor, which are introduced to our young people. Law enforcement problems have become so severe since many of these outsiders do not respect or understand our traditions in any way.

But most important, the Whirlpool Rock, which is sacred to all the Pueblos, not only Cochiti Pueblo, was desecrated through the construction of Cochiti Dam. Our people, and we still have a few of the individuals who are now elders living within the Pueblo, were told by the Corps of Engineers that when the Dam was constructed this area where the Whirlpool Rock sits, the shrine, would not be disturbed, but the Federal Government, the U.S. Army Corps of Engineers broke its word. There are things about our religion which cannot be told to outsiders, but I can tell you this, Mr. Chairman, that the breaking of that rock is something that has changed our lives for the worse in a way which can never be explained to outsiders.

At this time, Mr. Chairman, with your permission, I would like for Mr. Fred Cordero, who played an active role and participated in the negotiations for the construction of the dam, be afforded a few minutes here—

The CHAIRMAN. Governor Cordero?

Governor BOWANNIE. [continuing]. To say what he has to say about the Whirlpool Rock.

Mr. CORDERO. I am former Governor of Cochiti de Pueblo. My name is Fred Cordero, Thank you, Mr. Chairman, and also the Governor, for permitting me, or letting me say a few words as to what the Governor has mentioned about—I call it the Sand Rock.

That is one of my major and main area that I wanted to talk about. I was involved in many of the activities in the traditional way, and I know where there are several other sites within the lake, where the water stands now. The water has covered several areas where I used to go to those areas to also pray. I was one of the individuals who was selected—I do not recall the year—we were having a discussion at one of our council meeting houses in Cochiti de Pueblo.

I can now remember the head of the group that was leading this group, the Corps of Engineers, by Mr. Homed. Colonel Homed was

there, and we were discussing the area that you will hear more about. I was selected by the council at that day to join four or five other council members to go down there and take a couple of the members from the Corps of Engineers with us. The council decided that we should go and do it that very day while they were there, invite them to go down there with us, and to point out the area where they were not supposed to touch this rock. We went—they furnished us stakes, red flags tied to them. We went around the whole area of this pointed rock that sits there to the south side of the Rio Grande where the dam is situated right now.

This is, we told them, they understood it, and they agreed to go down there, and they were down there with us when we were staking the area. About 30 or 50 feet away from the rock, we placed the area and marked the area, and we told them that is as far as you can go with any equipment, whatever you're going to try to do here, build your dam—not ours, because we didn't request that. So, they understood. We got through with the staking out of the area, and we went home.

Later I heard, and saw it myself, in about 4 or 5 months, the way this Sand Rock appeared, when many times I visited that area to pray, wasn't the place where I used to go. Part of it was torn down, and this is then where I — I can't say what I have to say about the Corps of Engineers. Only thing I can say, and I learned, that they trespassed that area, the markings, violated the agreement. And I was talking awhile ago about several other sacred areas, sites, are covered with water today. So I have seen this happen with my own eyes, and I believe my time is limited, but that is what I indicated when I began telling you about this place. I guess the only thing I can say now is to thank all of you, and we request your help, as the committee, and also Mr. Chairman, your help in any way you can to assist us in getting the thing corrected as nearly, completely as possible. I thank each and every one of you for your listening and attention to me.

Thank you very much. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Governor Cordero.

Governor BOWANNIE. Thank you. Mr. Chairman, continuing on following what happened to the sacred rock, one problem that we did not foresee which has become increasingly with the passage of time, is the problem of seepage. We were shocked to learn recently that the Corps of Engineers knew full well that the earth dam they planned to construct, to build, would have significant seepage from it, and apparently, for whatever reason, that they had, concealed this information from us. And this is a point that Mr. Bliesner can provide details on in his testimony. We were surprised because back in 1975, when the lake was filled with water, immediately in 1976 we noticed that in our farming areas, our agricultural lands, water began to appear. Our lands became saturated with water. We brought this matter, this problem, to the attention of the Corps of Engineers, not on one occasion, but many times, numerous times. The Corps of Engineers finally took some measures and studied the area for awhile, to see what could be done in terms of alleviating the high water table problem in that 17-acre field. Then in 1979 the Corps of Engineers installed a subsurface drainage

system and purportedly reclaimed the land by the installation of this subdrainage system.

But the small system, the drainage system that was installed by the Corps, apparently is not working satisfactorily. And again, Mr. Bliesner can supply you with details regarding it's poor design and construction. In any case, the installation of this small drainage system did not prevent the seepage of water from continuing downstream. It has appeared in most of our agricultural heartland. I regret to inform you that at the present time out of approximately 800 acres that the Pueblo is capable of farming on, producing some crops, traditional crops, only—or I should say 615 acres out of the 800 acres are now affected by the high water table problems, which leaves the Pueblo and individual farmers approximately 200 acres.

Mr. Chairman, we have in the past for many years been complaining about this seepage problem to no effect. And there are records, documentation to support our efforts that we have made in the past.

The economic loss to us has been substantial, but the true loss cannot be measured purely in money, in economic terms. Our Pueblo has been located in this same area for more than 1,000 years. And before that time our ancestors occupied what is known as the Bandelier National Monument, which is located further on up north, northwest, from Cochiti Dam. And like I said, while our people are not rich in money, we have as Cochitis been able to maintain our tradition in part because we still follow our ancient religion and we are still able to speak our native language, and also because our lives are strongly connected to the land.

Mr. Chairman, I hope you can understand why we, the Pueblo, grew short of patience, given the fact that the problem was continuing with no solution in sight. The Pueblo, in 1980, filed a lawsuit against the Army Corps of Engineers. The bottom line in filing this lawsuit was to attract, gain some attention from the Army Corps of Engineers to get them to at least begin to show some interest, or demonstrate some interest in trying to address the problem that we were encountering, and the problem that we are still encountering in our farming areas.

In November 1987, as you are aware, Mr. Chairman, as a result of instructions from Congress an amendment was made to the appropriations bill which authorizes the Corps, I guess, to expend some moneys that have been provided to them, that within this amendment, within the legislation, there was an amount of dollars, $750,000, targeted to try to get whatever that was necessary off the ground to try to come up with a solution that would rectify the seepage problem.

On March 7, we held a meeting with the Army Corps of Engineers at their District Office in Albuquerque. This meeting was a result of the Pueblo's initiative again. To get something going. We submitted the request to the Corps the latter part of January for this meeting, and eventually the first part of March they agreed to sit down with us. And like I said, the meeting took place on Monday, March 7. It was at this meeting where the Corps took a position, and I believe that Senator Domenici addressed that concern that the Pueblo had regarding how the $750,000 should be spent, when and so forth. But at that meeting on March 7, the

Corps of Engineers took a position that again attempted to force on the Pueblo to reach a comprehensive settlement, by June of this year.

The reconnaissance which was promised to the Pueblo in 1987 was not provided until the latter part, again, of January 1988. This was a result of the Assistant Secretary coming out to Cochiti in January. We informed him, Mr. Robert Page, that we had not received a copy of the draft of the Recon study, although it has been promised to us, but it just kept on and on. General Hatch was with the delegation, and he instructed his people at that time, that he wanted this draft report be given to the Pueblo at the earliest possible date. Within 1 week it was hand carried up to my office. In the transmittal letter, it was very specific and clear that this was only a draft that it had not, officially been approved by the Army Corps of Engineers here in Washington, DC. There was a good chance that the contents of that study could be changed, modified because it did not represent the final product. After that we didn't hear from them, anything on the Recon study, until at our meeting on March 7. We again asked, whether the Corps of Engineers had officially approved the reconnaissance study. The information they furnished us at that time, was well, yes, they did last week. That was 3 days before our meeting. So, what I'm trying to get across here, Mr. Chairman, is that we the Pueblo are continuously knocking, on their doors. We want to work with the Corps. We want the Corps of Engineers to work with us.

As a result of that meeting on March 7, the Corps was very—the reception was very good—the outcome of the meeting was favorable. There were areas where it was gray, but all in all, the meeting was very successful. We have met with the Corps of Engineers today, after meeting with our New Mexico Congressional Delegation the last 2 days, and it seems to me that they have agreed in part, to the interim agreement that we proposed to them. Once this interim agreement is entered into, that the $750,000 would be obligated and they would be able to carry over into the next fiscal year, the $750,000. That was the understanding that we got again when we met with Senator Domenici.

All in all, at this point in time, I strongly believe that if the Corps truthfully and sincerely wants this seepage problem that exists on our reservation to be resolved—maybe there isn't an ideal solution, something that will work, that will guarantee us that it would completely, 100 percent eliminate the seepage, but at least something that would prevent the migration of the seepage to the Pueblo. If that should happen, we are gone as a nation, as Cochiti Indians.

Mr. Chairman, with this, I would conclude my testimony here today. I do want to thank you, as Chairman of the Senate Select Committee, for having demonstrated to the Pueblo of Cochiti, your interest on this matter. And I would urge the Congressional people that they continue to watch over closely the negotiations, and whatever matters that relate in trying to resolve or come to some acceptable solution in resolving the seepage problem on our reservation.

Mr. Chairman, we do have written testimony, and supporting documentation, which we would like to submit as part of the Con-

gressional Record of this hearing held here today. And I do thank you very much on behalf of all the people of Cochiti.

Thank you.

[Prepared statement of Governor Bowannie appears in appendix.]

The CHAIRMAN.Thank you very much, Governor. Without objection, all relevant and appropriate material will be made part of the record at this point.

I feel confident, having met with your representatives and the representatives of the Corps, that the Corps is most desirous of taking the necessary steps to resolve this matter. I think just as much as anyone else, they realize that to leave this alone would just cause it to fester, and I feel confident that some solution will be forthcoming.

I gather that part of the resolution of this problem may require the Cochiti Pueblo to assume certain responsibilities. As Governor of the Pueblo de Cochiti, is your Pueblo ready and willing to assume the responsibility for taking the first step, and that is to contract for the design and test construction of a drainage system pursuant to the $750,000 that was appropriated in the fiscal year 1988 appropriations bill?

Governor BOWANNIE. Yes, Mr. Chairman, the Pueblo is more than willing, and we are ready to proceed on those bases as you have just stated. We have provided the General a copy of our proposal. We met 10 minutes before coming into this committee room here, and basically outlined what you have just questioned, whether the Pueblo is willing, to move, proceed, with even the possibility of contracting the $750,000. We do have our own experts on board.

But I must tell you, Mr. Chairman, when the General heard this, his position was that they didn't think that would be possible.

The CHAIRMAN. May I ask your attorney, Mr. Gross, is that the position of your client?

Mr. GROSS. As I understand the question, Mr. Chairman, the answer is yes. The Cochiti Pueblo, after great deliberation and consideration, because this is not an easy decision for them to have reached, has decided that subject to the final ratification by the tribal council, which is part of their traditional procedure, to make this proposal knowing full well that certain risks are attendant to it.

Those risks involve, Mr. Chairman, the possibility that the Pueblo will not be able in an argumentative sense, as it were, and possibly a legal sense, to put any blame for a defect in the design, or its carrying out upon the Corps of Engineers. There was, in fact, and remains a school of thought within the tribal delegation—all of us to some degree have shared this point of view—that perhaps it is best to leave this responsibility with the Corps of Engineers because it would enable the Pueblo, if something should go wrong, to say again to Congress, look the Corps didn't do it right. But in light of its confidence in its own powers of self determination, these people on behalf of the Pueblo have said to the Corps, we are willing to take a measure of responsibility for our own fate with regard to this problem.

The CHAIRMAN. And the engineer concurs?

Governor BOWANNIE. If I may, Mr. Chairman, this short—for purposes of again the Congressional Record of this hearing here

today, I would like to submit what the Pueblo proposed to the Corps of Engineers a matter of 25 minutes ago.

The CHAIRMAN. Without objection—

Governor BOWANNIE. It is unfortunate, very unfortunate, that it is not the Corps' feeling, that what we submitted in terms of the possibility of Cochiti contracting the $750,000 is not likely.

The CHAIRMAN. That document will be made part of the record.

[Interim Agreement appears in appendix.]

The CHAIRMAN. May I inquire of your engineer? You are the engineer here?

Mr. BLIESNER. Yes; I am, sir.

The CHAIRMAN. Your name, sir?

Mr. BLIESNER. My name is Ron Bliesner.

The CHAIRMAN. You have heard the discussion to this moment?

Mr. BLIESNER. Yes; I have.

The CHAIRMAN. Are you, as the contract engineer for the Cochiti Pueblo, prepared to proceed with this responsibility of design and test construction of the drainage system?

Mr. BLIESNER. Yes; I am, Mr. Chairman. It was—

The CHAIRMAN. How long will this take?

Mr. BLIESNER. We're anticipating the test construction of the facilities that we would need to demonstrate the feasibility of the approach that we're proposing would commence this summer. The test construction would take approximately 2 months. We would need a period of at least 3 months to monitor the performance of the system and possibly a little longer. We would anticipate being able to have final information on cost estimates, and the final design by late spring of 1989.

The CHAIRMAN. I am correct to assume that the amount, $750,000, will suffice?

Mr. BLIESNER. It would.

The CHAIRMAN. I thank you very much, sir.

Mr. BLIESNER. Yes, sir.

The CHAIRMAN. Governor, I thank you very much. Governor Cordero, I appreciate your presence and your contribution this afternoon.

Mr. CORDERO. We also want to thank you very much, Mr. Chairman.

The CHAIRMAN. And Governor Bowannie.

Governor BOWANNIE. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

I am now pleased to call upon the representative of the Corps of Engineers, the Chief of Civil Engineering, Civil Works, Major General Henry J. Hatch, Director of Civil Works, Headquarters, U.S. Army Corps of Engineers. I gather you will be accompanied by Lieutenant Colonel Kent Gonser?

General HATCH. Sir, the District Commander is attending to other business. I am, however, accompanied by his Chief of Design, Mr. John Cunico, who is seated now to my left.

The CHAIRMAN. Welcome, sir.

Mr. CUNICO. Thank you.

The CHAIRMAN. General, it is good to have you, sir.

General HATCH. It's nice to be here, sir.

STATEMENT OF MAJ. GEN. HENRY J. HATCH, DIRECTOR OF CIVIL WORKS, HEADQUARTERS U.S. ARMY CORPS OF ENGINEERS, WASHINGTON, DC, ACCOMPANIED BY MR. JOHN CUNICO

General HATCH. Sir, with your permission, I will submit a written statement for the record, and provide some verbal summary of that at this time.

The CHAIRMAN. Without objection, your full statement will be made part of the record.

General HATCH. Senator, we spent quite a bit of time with the preceding witnesses, and your own comments reviewing the history of Cochiti Dam, and the downstream seepage, and saturation problems. I think it's best in the interest of time, that I skip over that and get, perhaps, right to the issues that have already been identified in this afternoon's hearing.

I did have an opportunity last month, with Assistant Secretary Page, as the Governor relayed to you, to visit the site. So I've had a chance to see it, as I know you have, Mr. Chairman. The Governor was right, I was a little irritated frankly, that we had not been forthcoming in providing the draft reconnaissance report to the Pueblo. I directed that be done, and it was done the following week. The report was staff by our headquarters. We looked at it, and as far as I know without any changes, we returned it to the District, authorizing them to use that report as a basis for discussions to develop a plan for design with the Pueblo.

I believe, to cut through a lot of this and get right to two issues, that I'm aware of that perhaps warrant some discussion. I found out yesterday afternoon that perhaps our guidance to the District Commander was a bit restrictive in terms of defining the nature of the agreement that we expected him to obtain with the Pueblo prior to initiating the design for the $700,000. In fact, I went back last night and reviewed our directions to him, and personally looked at the law, and I feel we were a bit restrictive. We will now be providing them guidance, and I discussed this with the Governor just before the hearing, that will instruct him to simply agree to a solution to be designed, and not expect to enter into an agreement with the Indians, either on their part, or ours, to commit absolutely and finally to a comprehensive solution. It was clear, as I read the law, that the intent was to go through at least a two-phased process and we now are embarked on, hopefully, in the near future arriving at a mutually agreeable plan for a design, an agreement on how we will proceed with the design. So I believe that issue is behind us for the moment.

I promised the Governor, that as quickly as possible we will go through several iterations, between Washington and the field, in order to obtain at least format, and the subsequently the substance of an agreement that we could approve in Washington as quickly as possible, so that design could proceed. It wasn't until just before the hearing that I realized there was a second issue, and it was the last issue that was discussed. And that was, in response to your question, whether or not the Pueblo was interested in actually being the contractor.

When faced with that question, and not having benefit of staff or an ability to consult with anyone, I took the conservative initial ap-

proach, and suggested to the Pueblo that I would not be able to make any commitment in that regard at this time. The law identifies the Army as being responsible and tasks the Secretary to develop a solution in coordination with the Pueblo de Cochiti. I fully support that, but at this moment I do not believe that I would say that the best solution, is necessarily the Pueblo itself to be the contractor.

The Governor expressed to me informally, the Pueblo's disenchantment with the previous engineering work done by a Corps contractor. I assured him that that level of concern would be taken into consideration. I further suggested that although in response to Congressional guidance, the design would be fully Federally funded, it would be appropriate for the Corps of Engineers to approach that design as we would our new projects, regular projects, that are cost-shared, treating the Pueblo as a partner. Involving that partner at the beginning, in the selection of a design contractor, as well as participating in reviews of that design as it proceeds, and certainly in the final review hopefully will result in a mutual agreement that the Secretary of the Army then could bring back to the Congress recommending, as required, subsequent authorization or appropriation of funds to actually fund what might be a final fix. And that's how we left it just before the hearing began, Mr. Chairman.

[Prepared statement of Major General Hatch appears in appendix.]

The CHAIRMAN. May I ask the Governor, is that your understanding, sir?

Governor BOWANNIE. Well, I don't want to get in an argument here with the General but I'm not totally agreed with him.

General HATCH. I believe we've agreed at the moment not to agree, but I believe, again, just prior to the hearing, and as of this moment, I think we understand each other's position, with respect to that. I understand the Governor's preference clearly, and so does the Design Chief at Albuquerque, who will actually be involved in the design process and deciding how that is to be physically accomplished. We understand their preference would be to basically be our contractor. We assume implicit in that is they would use perhaps their current contractor for that purpose.

Again, I would prefer not to make any—I could not make a commitment on that right now. I'm not sure what the proprieties would be in our making a commitment to use a single source contractor for that purpose.

The CHAIRMAN. In other words, as of this moment, you're not certain whether the law would permit you to delegate your authority, or to contract this responsibility to the Pueblos?

General HATCH. I would say both I'm not certain whether we would be legally, or by regulation, authorized to do that, and additionally, I don't know if that's really the best solution. I think we'd like to do a little more discussion within the Corps, as well as with the Pueblo in that regard.

I might add, just as a footnote, we realize that the Pueblo contractor could be the one considered by the Corps, directly, if he's interested.

The CHAIRMAN. Well, he is smiling there. [Laughter.]

General HATCH. Is he. I sensed that right behind me.

Senator, I believe I had a few more things to say, but I think we've boiled it down to the principal issues right now. The number one key issue at hand for us, is to convey to the District, and I believe with their representative right here at my left hand, he understands at least verbally, that we loosen up a little bit on the nature of that initial agreement. It is not intended to lock either the Pueblo de Cochiti or the Army into a final solution. That will be phase 2. But at least to narrow it down so that we can identify the physical solutions that we mutually believe most appropriate for design, and to the commitment of the $700,000 that we have been provided.

The CHAIRMAN. Well, I commend both of you for having reached this stage. I would hope that you will continue this process with some solution forthcoming. Obviously the committee will be monitoring this and following this very closely. Ever since my visit to the Cochiti Pueblo I have been very concerned about the condition of their agricultural lands. As the Governor pointed out, if this situation is permitted to continue the very viability and the existence of the Pueblo de Cochiti would be in jeopardy. So we appreciate this and we pray that the Corps of Engineers can help us expedite this. I think with each passing month, the trouble gets worse.

If I may, at this stage, if it is alright with you, I would like to place this reconnaissance report into the record.

General HATCH. Yes, sir; please.

The CHAIRMAN. Without objection, so ordered.

[Reconnaissance report appears in appendix.]

The CHAIRMAN. In order to make certain that everything is understood, may I call the Governor and his counsel up there also with you, General?

General HATCH. Sure.

The CHAIRMAN. Now that we have the opportunity of all parties being here—Governor, I gather from your response, that as of this moment you are satisfied with what is happening?

Governor BOWANNIE. In part, Mr. Chairman. In part because of what has been discussed in the latter part of the General's testimony or presentation. The part where the Pueblo feels confident to take on the responsibility to administer the test construction, the design, and the engineering aspects, what we're calling at this point in time, Phase One. And hopefully, eventually, and like I stated, we are confident. I mean, we have handled projects, you know, $400,000, $500,000, and $750,000 projects through grants or whatever from Federal entities. And we do have the expertise, and I am not talking about expertise in engineering, water hydrology, or anything highly sophisticated, but Mr. Ron Bliesner is a prime example of the expertise that the Pueblo has on board through some other contract. And again, based on his information, he knows of only about two or three contractors in the Nation that do perform this type of construction, agricultural, sub-surface drainage systems.

The CHAIRMAN. Well, I am certain—

Governor BOWANNIE. Excuse me, Mr. Chairman. That's the only area here, like the General said, he is not in a position at this par-

ticular time to commit himself or the Corps to whether that would be—

The CHAIRMAN. I am certain you understand that the General is in no position at this stage to commit himself, not having the benefit of counsel. If he commits himself, he may find himself violating the law, and I do not wish to have the General violating the law. He is too good a man to be violating laws around here.

You are very fortunate. You have the top General sitting next to you. If he says go ahead, it will be go ahead. So, I think this is an auspicious day. I am glad that we have reached at least the first stage of accord. I expect the next one to be similarly amicable, and I look forward to the day when you can report to this committee that all is well, and the matter has been resolved.

So, if you have no further statement, I would like to thank all of you for participating in this important gathering. I hope that this will be the first of many important gatherings between the parties involved.

Thank you very much, General.

General HATCH. Thank you.

The CHAIRMAN. Before we adjourn, without objection the statement of Congressman Bill Richardson will be made part of the record at this point. Also, a statement by Mr. Ron D. Bliesner, vice president of the Keller-Bliesner Engineering Company, will be made part of the record at this point.

[Statements of Mr. Richardson and Mr. Bliesner appear in appendix.]

Governor BOWANNIE. Mr. Chairman.

The CHAIRMAN. Yes, Governor.

Governor BOWANNIE. If I am in order here—

The CHAIRMAN. You are always in order, Governor.

Governor BOWANNIE. Thank you.

If I may, I would like to request that Mr. Ron Bliesner make a very brief, short, and concise statement.

The CHAIRMAN. Be my guest. I just put his full statement in there, but if you wish to make a brief, short statement, please come up.

STATEMENT OF MR. RON D. BLIESNER, VICE PRESIDENT, KELLER-BLIESNER ENGINEERING, LOGAN, UT

Mr. BLIESNER. Thank you, Mr. Chairman.

I just wanted to clarify a couple of points that I think are important for this committee to understand in dealing with the situation.

First of all, we've been discussing solutions to a problem. And we have essentially reached an agreement, or tentative agreement, with the Corps as to what the best solution out of the reconnaissance report would be, and that being a subsurface drainage system for the most part. But I think it's important that you understand what this solution really does.

This solution is a method of mitigating the seepage from the dam, and the problems associated therewith, not stopping the seepage. The system will provide relief only for the lands to which the system is applied. In other words, if we build this drainage system for 615 acres that are now affected, it will correct the problem on

those 615 acres. It will not prevent migration of the problem to other areas. As we looked at the data from the ground water contour reading information and plotted that data, we were hopeful that things had stabilized and that the aerial extent of the problem was not getting greater. And that was true until 1986 when the operation of the dam changed some and also we were encountering very wet years. During that period of time we saw an increase in the area that has been affected. And as late as the Fall of 1987 we saw some additional areas affected that weren't affected previously, of the agricultural lands.

Our best estimate is that the 615 acres will be the majority of the land affected, but we're concerned that it may continue to go past there. We want to make it clear that the solution that we're working on with the Corps is to solve the present problems. There may be other problems that will develop later on, and we're concerned that the Corps should not be released from responsibility by fixing the problems on the area that now are affected, but should continue to monitor and be prepared to correct any future problems. And this is key, especially in the area of the Pueblo, or the village, as well as the other 200 or so acres of agricultural land that may be involved.

While we do not feel that it is probable that there will be a problem with the village, there is that possibility, especially as the reservoir is operated at higher stages during these very wet years. And we've seen evidences of seepage in areas that we had not seen before at very high elevations above the fields on the same side of the river as the Pueblo. So there is some concern that that seepage could continue in that area, and we need to be prepared to correct that quickly before it could damage a very important part of the people of the Cochiti Pueblo's life and history.

Second, I would like to address the area that we're discussing concerning who should have the responsibility of designing the ultimate solution. And at the risk of appearing greedy, since I'm the one that's involved in the design, we are very concerned that the person that does do this design is well qualified and experienced in agricultural drainage. From an examination of the system that was designed and installed — or the supervision of installation, was conducted under the Corps' supervision, I believe by a subcontractor, but that system design was reviewed by the Corps, I'm assuming, and then later in the reconnaissance report and in other studies, essentially given a stamp of approval as being a system that was performing well, gives us great concern. The system was poorly designed. It was poorly installed, and it has not functioned to lower the water table adequately in that area.

Now, as the General mentioned in our earlier meetings, this was a difficult area to design a drainage system for. They didn't have a lot of information when they put it in. And we have derived much information from examining the performance of that system that went in. Had it been installed correctly, it would have performed much better. Had it been designed correctly, it would have performed much better, and we would have been able to get better information on what to do in the next phase. We think it important that the contractor, the engineering contractor, and subsequently the drainage contractor that builds this system be very well versed

in what happens in an agricultural drainage system and how to do it. That's why we proposed the construction of test sections in the system. And we are very concerned that these test sections be performed by the best qualified drainage contractor we can find. The reason we feel that it is best for the Pueblo to have the subcontract through the Corps to do that, and then be able to select their contractors, is that they can do that without some of the restrictions that would apply, possibly, to the Corps of Engineers, concerning sole source contracts. That is a very important issue.

I have mentioned to the Governor that there are very few drainage contractors that have the capability of constructing under the difficult conditions that we face in Cochiti. I know of one particularly that I would recommend to do the test construction. We could best measure the performance and the cost requirements to construct if he is there doing the construction, because he understands problems better than anyone I know. And that's the reason that we would like to have the subcontract granted to the Cochiti Pueblo because it gives us that flexibility to secure the very best people without going through a low bid process to do at least the construction of the test systems. When we reach the phase of designing and letting for bid the full system, then of course it would be competitively bid, but we would know a lot about how to do it by then. We would essentially know many of the uncertainties that would be present in a bid without doing the test construction.

So with that explanation, that's the reason that the Cochiti Pueblo is suggesting to the Corps of Engineers and to this committee that they have the opportunity of taking that subcontract for design and construction.

The CHAIRMAN. In your statement you use the words, ultimate solution. You did not mean that, did you?

Mr. BLIESNER. I guess I didn't. What I meant was to arrive at the solution for the lands that we are then fixing. We believe that this approach will be the final solution with the information that we would gain from the test section construction for that area that is affected now. But we don't believe that there is an ultimate solution to stop the migration of the seepage. It will eventually reach some equilibrium state, but right now we're not sure where that is.

The CHAIRMAN. I suppose there is an ultimate solution. You could drain the dam.

Mr. BLIESNER. The ultimate solution would—that would be an ultimate solution, although not a very palatable one.

The CHAIRMAN. How much would it cost to set up and maintain this drainage system?

Mr. BLIESNER. Our best estimate now is in the neighborhood of $3.7 million to construct the system, and then the sinking fund that would be required for long term maintenance would bring the total—I'm recalling numbers now — around $4.7 million, if I remember the numbers correctly, to construct and maintain the system. However, I should point out that that's based on the assumptions we have now on the ability to construct the system as we have anticipated designing it without doing the test sections. And it could be as much as 50 percent higher than that, depending on the performance of the test system.

The CHAIRMAN. $8½ million. What would it cost to drain the dam, the lake?

Mr. BLIESNER. I'd have to refer that to the Corps of Engineers, I'm afraid.

General HATCH. Sir, without reference to any particular documents, in lost benefits alone it's probably several million dollars a year in perpetuity, or for the life of the project.

The CHAIRMAN. Originally the project was a flood control project, was it not, General?

Mr. CUNICO. It was originally for flood control when it was originally authorized in 1960. Subsequently, Congress added recreation as a project purpose, and there was a 50,000 acre foot pool basically—

The CHAIRMAN. So originally the dam was not built to maintain a constant level of water in that area?

Mr. CUNICO. Yes; it was. The 1960 Flood Control Act authorized flood and sediment control, and I believe it was in 1965 that recreation was authorized, but the design contemplated having that recreation, because the design was done subsequent to the recreation authorization. It was designed to contain a permanent pool. And the benefits foregone, as I recall, is about $5 million a year recreation benefits, and the total accumulated flood and sediment benefits to date, since it went into operation in 1976, is something over $194 million.

The CHAIRMAN. I thank you all once again. I have to report to the Senate. We have a vote in progress. Thank you.

The hearing is adjourned.

General HATCH. Thank you, Mr. Chairman.

Governor BOWANNIE. Thank you very much.

[Whereupon, at 4:03 p.m., the committee was adjourned.]

APPENDIX

Additional Material Submitted for the Record

PREPARED STATEMENT OF JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

I. INTRODUCTION

Thank you, Mr. Chairman, for sanctioning today's hearing and for taking a keen and active interest in the high groundwater problems that have plagued the people of the Cochiti Pueblo in New Mexico, for several years. I am sure Governor John Bowannie, who will testify later this afternoon, joins me when I say your efforts on behalf of the Cochiti people are much appreciated.

This hearing, although considered unnecessary by some people, is of particular importance to the Cochiti people. They have waited patiently year after year for a solution to their problem while the Army Corps of Engineers has found excuse after excuse to postpone that solution.

II. BACKGROUND

Briefly, let me outline the need for this hearing and the need for the immediate resolution of the high groundwater problem on the Cochiti lands.

In 1965, the Corps -- without any requests from the Cochiti Pueblo -- began construction of an earthfill dam on an easement through the Rio Grande River in north-central New Mexico. The Corps previously had purchased the easement from the Cochiti Pueblo for less than $150,000.

A. Land Destruction

Since the dam's completion in 1976, we have witnessed, and worked to prevent, the destruction of land that has been farmed by the people of the Cochiti Pueblo since pre-Spanish times. The Pueblo's only agricultural land, nearly 800 acres

lying directly below the dam, has been rendered virtually useless because of water storage and extensive seepage from under the dam. The resulting high water table has left standing ponds and marshes on much of this acreage and has water-logged the rest. Similar damage has occurred to a lesser but still serious degree on land within the nearby town of Pena Blanca and on the tribal land of the Santo Domingo Pueblo. The livelihood of many people who are dependent on farming has been destroyed.

B. Law Suit and Negotiations

Without going into detail, I will simply say that the Pueblo filed suit in federal district court more than a year ago in an attempt to prompt the Corps into correcting the problems stemming from the dam's construction. The suit has been stayed pending the outcome of negotiations between the two parties. In a meeting with myself and Senator Domenici on October 6, 1987, the Pueblo and the Corps agreed to continue negotiations and, if possible, to settle their dispute out of court.

C. Design and Engineering Amendment

In an effort to facilitate the negotiations so that a solution to the problem could be agreed upon, I, on behalf of myself and my colleagues, Senator Domenici, and yourself, Mr. Chairman, introduced an amendment to H.R. 2700, which became law late last year as part of the Continuing Resolution. The amendment directs the Corps of Engineers to use up to $750,000 of its already appropriated funds for the preparation of engineering and design plans that would remove surface waters from the Cochiti Pueblo's agricultural lands. The expenditure by the Corps is conditioned, among other things, on the ability of the Corps and the Cochiti Pueblo Tribal Council to reach a written agreement setting forth such a plan.

D. Reconnaissance Report

Previous to the adoption of the amendment and pursuant to a Congressional directive, the Corps had been studying possible solutions to the dam seepage problem. It had promised to produce a preliminary report based on an engineering study conducted in New Mexico by mid-November. From that study, the parties believed an adequate solution could be formulated. Neither the Governor of Cochiti Pueblo or I received a copy of the Corps study, titled "Reconnaissance Report: High Groundwater Problem on Pueblo de Cochiti Lands Below Cochiti Dam, New Mexico," until mid-February, 1988. Even then, it was in draft form.

The draft report documents and confirms what the people of Cochiti Pueblo and the Corps have known since 1975 -- that the wet field problems are the direct result of "foundation seepage from the dam..." (quote from the draft report).

Verbal reports to the Corps as early as December, 1975 and written Corps reports in 1979, both quoted in the draft report, confirm this. Thirteen years after those first reports, the Cochiti farmland remains soggy, waterlogged and virtually useless.

1. Recent Successful Meetings

I understand that Governor Bowannie and Corps representatives held a series of successful meetings in New Mexico last week, during which the findings of the draft report were discussed with apparent success and progress. Nonetheless, given the Corps track record of non-action, I believe the record established by this hearing will be crucial to any resolution of this tragic matter.

2. Reconnaissance Report Language

Again let me reiterate, there is no doubt that the current wet field problem on the Cochiti lands is the direct result of dam seepage, and there is no doubt that feasible solutions exist to alleviate the problem. Indeed, the draft report states unequivocally:

> This report concludes that there is a significant groundwater problem on the Pueblo de Cochiti lands downstream of Cochiti Dam. This high groundwater problem is primarily the result of foundation seepage from Cochiti Dam. This report further concludes that several adequate structural solutions exist to alleviate the problem.

III. CONCLUSION

It is my sincere hope that the parties will agree upon an adequate solution without further Congressional intervention. Nonetheless, I wish to make very clear the fact that I stand ready to do all that is necessary to ensure that this problem is resolved.

For twelve years the people of the Cochiti Pueblo have waited for the Corps to come up with a solution. They have waited long enough. It is time to move forward and develop a remedy that adequately address the concerns and problems of all the people who have been adversely effected by the dam seepage. Action by the Congress may be necessary to make this a reality. If so, I am sure the Cochiti people and all the residents living below the dam have your support, Mr. Chairman. For that, I again say thank you

I look forward to hearing the testimony of the remaining witnesses today, particularly that of Governor Bowannie, who can tell you much more eloquently than I of the financial, cultural and religious loss this problem has caused to the people of Cochiti Pueblo. Thank you.

SENATOR PETE V. DOMENICI

STATEMENT

THE COMMITTEE ON INDIAN AFFAIRS

COCHITI DAM SEEPAGE

2:30 P.M., MARCH 15, 1988

485 RUSSELL SENATE OFFICE BUILDING, WASHINGTON, D.C.

Mr. Chairman. I appreciate the opportunity to appear before this distinguished committee. I join you in welcoming Governor Bowannie and the delegation from Cochiti Pueblo.

You know of my strong support for the cooperative and constructive approach the Pueblo has taken in working with the Army Corps of Engineers to resolve this very difficult problem.

Since the problem of the wet agricultural lands at Cochiti became evident a decade ago, I have worked with leaders of the Pueblo to obtain a solution. I have visited the site. I have walked through those damp fields. I have done what I could to help the Corps of Engineers and the Pueblo reach a reasonable solution.

We have every right to be pleased with the progress that has taken place recently. Both parties have stated a cooperative approach.

Mr. Chairman, we are here today in that cooperative, let's-get-the-job-done spirit.

For a number of years, we tried to work this out on an administrative basis. Lawsuits were filed. Yet the fields remained wet. In fact, they grew wetter. So my colleague, Senator Bingaman, and I sponsored an amendment last year to appropriate $750,000 to enable the Corps to plan and design a solution.

I have attached a copy of that legislation with my statement, and I ask that it be included in the hearing record.

Since passage of the CR, the Corps has moved with commendable speed. For an agency where project planning sometimes is measured in decades, the Corps has completed the reconnaissance study it began earlier. Corps officials met with the Pueblo officials last week, and has another session scheduled a week from today.

I understand there discussions went well, very well. The Corps has the money and is ready to go. The Pueblo is ready to move.

The language in Public Law 100-202, which met everyone's agreement last fall, allows $50,000 to be spent to plan the project, then $700,000 to be spent on design and engineering <u>after</u>

the Corps and the pueblo agree in writing to a design to solve the problem.

One question has been what needs to be agreed upon prior to the spending of the $700,000 for design and engineering? My view, which is the understanding of both the Pueblo and the Corps, is that the initial agreement would select a plan that looks good. That decision clearly is not the final agreement. That final pre-construction agreement can not be reached, realistically, until the engineering is finished.

The Pueblo has also said it may want to focus renovation work on the acres that are easily restored, and may prefer compensation or a land swap for the harder-to-restore lands.

As I understand it, the Pueblo is also greatly concerned over possible water problems in the pueblo itself; the Corps must begin to look at this issue. As part of the design phase, the Corps may also have to undertake some actual, in-field test construction to make certain that its design will work.

At the meeting next week, the Corps and the Pueblo will discuss in more detail the options to fix some acres and compensate for some acres. More information will be available on the land swap possibilities. The Corps, as I understand it, will be working on more detail on engineering costs.

One potential solution, after we obtain a usable design, would involve a cash settlement, based on the actual cost of a project and its anticipated maintenance. This approach offers

many advantages, as I see it, once we get a design. A cash settlement would allow the pueblo to avoid certain Federal procedures and expenses, use its own labor, and do the actual construction work as weather cycles dictate.

In other words, the Pueblo would have an opportunity to do work at its speed, allowing Federal settlement funds to be banked in the interim.

Mr. Chairman, I thank you again for this opportunity to testify. I am pleased that this is moving so rapidly, which I know is in large part due to your great interest in seeing a fair and proper resolution.

The people of Cochiti have suffered with this problem for many years. It is a problem that developed from a Federal investment. It is only fair that the Congress and the Corps of Engineers rectify that.

Thank you.

P. 114 of House Report
100-498, which
became Public Law 100-202
(the 1988 Continuing Resolution)

"The Secretary of the Army, because of the Federal trust relationship that links the United States and Indian people, is directed to expend within available funds not to exceed $50,000 to plan and not to exceed $700,000 to design and engineer appropriate works to alleviate high ground water problems on agricultural lands owned by Cochiti Pueblo, New Mexico, directly downriver from Cochiti Dam: Provided, however, That no such funds shall be expended by the Secretary for design and engineering until the Secretary and the Tribal council of the Pueblo have agreed in writing to a plan of design that, in the judgment of both parties, will resolve the problems related to such high ground water: And, Provided further, That the Secretary and the Tribal Council of the Pueblo shall continue to negotiate, and, if the parties so agree, the Secretary shall submit to Congress, if appropriate, a proposed settlement that would be in lieu of, or in addition to, any construction of works for the purposes of alleviating high ground water problems. For the purposes of this negotiation only, the provisions of section 3 of the Act of May 15, 1928 (45 stat. 535, ch. 569; 33 U.S.C. 702c) and sections 2401(a), 2401(b), and 2680(a) of title 28, United States Code, are waived. Nothing in this paragraph shall be construed to prejudice the rights, responsibilities, and defense of either party in any litigation between the Pueblo and the United States, nor commit the Secretary of the Army to a structural solution of the controversy."

Statement of John M. Bowannie, Governor Pueblo de Cochiti
Before Senate Select Committee on Indian Affairs
March 15, 1988

Mr. Chairman, my name is John M. Bowannie and I am the Governor of the Pueblo de Cochiti of New Mexico.

Please allow me to introduce the delegates from the Pueblo who are here with me today. The Pueblo's attorneys, Mr. Jerry C. Straus of Washington, DC and Mr. Michael P. Gross of Santa Fe, New Mexico are also here with us, as is Mr. Ron D. Bliesner of Keller, Bliesner Engineering who is the Pueblo's engineering consultant and who will make a brief statement later on. Our attorneys and Mr. Bliesner will be available to answer any legal or technical questions which members of the Committee may have. On behalf of the Pueblo I want to thank you for convening this hearing to review our problem with seepage from the Cochiti Dams in detail. We also want to thank Senator Domenici, Senator Bingaman and Congressman Richardson who have worked for many years to assist us on this matter.

Mr. Chairman, as Governor of the Pueblo de Cochiti, I am here as spokesman for all the Cochiti people to tell you that

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in addition to the terrible damage already done to our Pueblo by the construction of this dam, we now face incremental, unanticipated damage which may eventually, if it hasn't already, threaten the very existence of our Pueblo. Unless this seepage problem is solved soon and its migration further downstream halted, I am afraid we face the literal and total destruction of our useful land base and with it everything that makes us Cochitis. What we are talking about here is the possible destruction of our nation -- a nation which has endured for thousands of years.

As you know, in 1975 the construction of the Cochiti Dam was completed, the dam gates were closed and an artificial lake--known as Cochiti Lake--was created in the center of our Pueblo lands. We did not want this project which has brought many outsiders to our Pueblo and deprived us of present use of approximately 4,000 acres of our ancestral homeland. We were told at the time, however, that we had to agree to a perpetual easement allowing this project to be built or the land would be taken from us in fee simple, without our consent, through condemnation proceedings.

I must tell you in all candor that the problems we feared have all come to pass. The desecration of our land has not led to economic prosperity for us, but has gravely interfered with the maintenance of our traditions which are central to our existence. Today, efforts are being made, against our will, to develop hydro-electric power at the dam

site and further disturb natural religious shrines. Before the dam was completed, we were persuaded to sponsor the construction of a new non-Indian community in an area adjacent to the Cochiti project known as the Town of Cochiti Lake--but this development recently went bankrupt and has not proved to be a benefit for us.

The tranquillity of our Pueblo has been disturbed by a large influx of visitors, over a million each year, who come to use the recreational facilities on the lake. They have brought liquor and drugs, which are introduced to our young people. Law enforcement problems have become severe since many of these outsiders do not respect our traditions in any way and trespass on the Pueblo lands.

The Dam has backed up much more than expected and has flooded archaeological sites within the Bandelier National Monument which was the former home of our Pueblo. The water of the sacred water serpent -- Cheena -- the Rio Grande River -- has been disturbed and polluted and is no longer usable in our religious rituals as it had been for thousands of years before. A sacred area from which we derived white clay for our ceremonies has been flooded and is no longer available to us.

But most important, the Whirlpool Rock, which is sacred to all the Pueblos, was desecrated through the construction of the Dam. Our people were told by the Corps of Engineers that when the Dam was constructed this area would not be disturbed; but the Government broke its word. There are things about our

religion which cannot be told to outsiders, but I can tell you this, that the breaking of that rock is something that has changed our lives for the worse in a way that can never be explained to outsiders.

One problem that we did not foresee which has become increasingly worse with the passage of time, is the problem of seepage from the Dam. We were shocked to learn recently that the Corps of Engineers knew full well that the earth dam they planned to build would have significant seepage from it and they concealed this from us. This is a point that Mr. Bliesner can provide details on in his testimony. From our perspective, we were surprised when, almost immediately after the formation of Cochiti Lake, our lands immediately downstream from the Dam became flooded or saturated with water. The Corps of Engineers studied the problem for several years and in 1979 a 17 acre field was purportedly reclaimed by installation of an underground sub-drain system. This system has been largely unsuccessful in the area involved and much of the 17 acres is still in unsatisfactory condition. Mr. Bliesner can supply you with details of its poor design and construction.

In any case, the installation of this small drainage system did not prevent the seepage of water from continuing downstream and appearing in most of our agricultural heartland, the farmland on which we grow the few crops which our land is capable of producing. I regret to inform you that at the present time approximately 615 acres of this precious farmland

and 250 acres of Bosque grazing land--all of it outside the project easement--have been rendered totally or partially useless to us. To put this problem into perspective, I should note that of the approximate total 50,000 acres of our Pueblo, approximately 800 acres are susceptible to crop agriculture under current conditions and we have now lost approximately 615 of these precious acres. In other words, we now have less than two hundred acres on which we can farm, and some of these acres are not really accessible.

We have prepared a short history of this seepage problem which has been furnished to staff, along with supporting documentation, and we ask leave to have this material included in the record of this hearing.

For many years we have been complaining about this seepage problem to no effect. While the Corps of Engineers, over the years, did various studies, it refused to take any meaningful action and even blamed some of the problem on other factors such as the condition of the irrigation canals in the area.

The economic loss to us has been substantial but the true loss cannot be measured in purely economic terms. Our Pueblo has been located in this same area for more than 1,000 years. Before that time our ancestors occupied the area that is now known as the Bandelier National Monument, slightly to the north and west of our present location. While our people are not rich in money, we have been able to maintain our tradition,

in part because we still follow our ancient religion and speak our native language, but also, in part, because our lives are strongly connected to the land.

More than 50 of our people no longer can farm the traditional lands of our Pueblo and earn their livelihood, as our ancestors did, within the confines of our Pueblo lands. But the disruption to the Pueblo is more than economic. While some have been able to obtain substitute income through employement outside the Pueblo, that does not redress the damage. There has been a significant change in the traditional way of life of our people. We have, in effect, been partially evicted from our homeland.

You can understand why we grew short of patience, given the fact that the problem was continuing with no solution in sight. In 1980, we filed some claims on behalf of individual farmers for the crop losses they had sustained and a few of these were settled with the Corps of Engineers, but the overall problem continued and worsened. To protect our legal rights we felt compelled to file a lawsuit in November of 1985 asking for judicial relief for our problem. As you know, the Corps of Engineers bitterly resisted our case and tried to argue to the federal court that it lacked jurisdiction to hear it, a point that was rejected by the court when it denied the government's motion to dismiss last year. At one point, the Corps even suspended efforts to study the problem, because we filed this suit and did not resume the study until directed to do so by Congress.

To our people, the treatment we have received has been shameful but we now have reason to hope that a partial solution can be found thanks to the active interest displayed by you, Mr. Chairman and your Committee, including your visit to the Pueblo in the fall of 1987 and thanks to the active and continuing support we have received from Senator Domenici and Senator Bingaman and from Congressman Richardson. Apparently the Corps has finally realized that something must be done to help us.

In November of 1987, as a result of instructions from Congress made in the fiscal 1987 appropriation report, the Corps prepared a Reconnaissance Study which recommended a number of alternative solutions. In the Continuing resolution which made appropriations for Energy and Water Development for the present fiscal year, Congress followed up by enacting an amendment proposed by you and Senators Bingaman and Domenici, to direct the Secretary of the Army to spend $750,000 on planning and designing a solution to the problem. The work was to be done after the parties had met and negotiated a solution acceptable to both sides.

Despite the clear and sustained Congressional mandate, and despite promises made to Senators Domenici and Bingaman, for many months we were unable to obtain a copy of the Recon Study which was promised to us last fall. This plus the Corps' delay in responding to our January request to resume negotiations made it impossible to promptly begin the meaningful negotiations

which Congress had directed. In January, Corps representatives even stated that the project would not go forward unless some other project was cancelled and we began to lose hope that any progress would be made this year.

We are happy to report that as an apparent result of the recent initiative of Assistant Secretary of the Army, Robert Page, who visited our Pueblo in late January and saw the devastation to our lands himself, the Recon Study was finally furnished to us in draft form and was recently approved by the Secretary of the Army's office in Washington. We are also happy to report that on Monday, March 7 we finally met with representatives of the Corps at its Albuquerque office to review various options and made significant progress in working out a framework for an overall solution.

One solution that was strongly urged on us, as it has been in the past, was that the Pueblo consider acceptance of a lump sum money payment to compensate it for the losses it has sustained. While it might seem that acceptance of such a payment would be better than nothing, we have to state in all candor that the mere payment of money to us would in no way be sufficient. As I have stated above, the damage to us cannot be measured solely in economic terms We need to find a solution that will enable the Pueblo to continue its traditional way of life with reasonable assurance that it will not suffer any significant additional damage from the operation of the dam.

In our meeting with the Corps we also had considerable discussion of the various engineering alternatives that were

proposed in the Recon Study. We realize and it has been pointed out to us by a number of people, that none of the solutions proposed in the study can be expected to cure the problem on all of the land that is affected. We now understand that there may be some parcels of land that can never be reclaimed while the dam is in operation.

While no ideal solution exists, we have developed a comprehensive six-point proposal which we submitted to the Corps on March 7. We believe this proposal offers a practical solution that would in large part rectify the wrong that has been done to us and satisfy our essential concerns.

With your indulgence, I would like to summarize the various elements of that proposal.

First--and this is most important to us of anything--we believe that any negotiated settlement must give the Pueblo assurance that the Pueblo village itself, our communal area which contains our sacred Kivas, will be kept from seepage damage. We have recently become aware of a rise in the water table in our village. While there is no apparent immediate threat to our community, we fear that with the passage of time, additional water will seep from the dam and flood us out from the center of our Pueblo. We were advised by Corps of Engineers representatives that this is not really a problem to be feared but we want to be sure that everyone understands that in agreeing to a settlement now we will not be surrendering the

right to protest and seek relief from any future seepage that threatens the very existence of our Pueblo through the flooding of the Pueblo's center or other areas which are not presently affected by seepage.

Second, as I stated before, we realize that some of the lands which are flooded may never be reclaimed. However, it is also true that a very large part of the area that is affected adversely by the seepage can be restored to its former condition and we propose that reclamation go forward to reclaim these lands, giving us a reasonable guarantee that they will be capable of sustaining our traditional agricultural pursuits without the threat of future seepage as to those particular lands. We hope to have detailed information on this in the near future.

Third, to compensate us for any portions of the affected area which cannot be restored and reclaimed for traditional agricultural uses, the Pueblo seeks comparable new lands near the Pueblo, developed to sustain crop agriculture which would be added to the Pueblo reservation and placed under federally protected trust status.

Fourth, for losses both tangible and intangible to date we would expect the payment of actual damages in a reasonable amount. We refer the Committee to a study done by our economist Dr. William Gosman whose summary sheet is attached to this statement.

Fifth, the Pueblo would like to be given reasonable input into decisions affecting the level of impoundment in Cochiti Lake. One idea would be to give the Pueblo ex officio, non-voting status on the Rio Grande Compact Commission.

Sixth, we would like assurance that the mosquito problem created by the high water table which has plagued our tribal members would be eliminated. This mosquito problem has severely disturbed us. Few Pueblo homes are air conditioned and we are forced to stay indoors in the sweltering heat of the summer, to escape the mosquito infestation.

I am happy to report that in our meeting with the Corps of Engineers on March 7 there was a favorable reception to this proposal and it is undergoing careful study by the Corps. We have also agreed with the Corps to enter into intensive negotiations, meeting approximately every two weeks, in an effort to resolve the controversy at the earliest possible time. We are hopeful that these efforts will produce an early and successful conclusion.

One problem on timing has recently emerged. The Corps representatives have expressed concern to us that the directive recently enacted by Congress for them to negotiate with us and, after negotiation, expend money on design and engineering of a solution or partial solution, will expire on September 30, 1988. While we do not agree with that interpretation of Congress' action, we certainly will do everything in our power to bring this matter to an early conclusion. However, we think

it is equally important that the ultimate solution agreed upon be workable and fair to all and that we not be in a situation of having to work against an unrealistic deadline, particularly considering the long delays that have prevented the commencement of meaningful negotiations until earlier this month.

There is another point that needs clarification. The Corps is taking the position that the $700,000 which Congress directed to be expended for design and engineering can only be expended if an agreement we reach first picks a particular engineering solution and only for the design and engineering of that particular solution. We believe that Congress intended for the Corps to be more flexible. Our expert, Mr. Bliesner, informs us, and he will be available to answer any questions you may have on this score, that the only way any certainty can be achieved in designing a solution for this problem is for some test construction to be done before a specific engineering solution for the entire area is finally adopted. Mr. Bliesner believes this could be done over the summer at a cost of no more than two to three hundred thousand dollars so that this can be accomplished within the budget established by Congress for design of a solution. He advises us also that there are simply too many unknowns in the area to proceed to final design of the entire solution without going through this intermediate step as part of the design process.

We are advised that the current statutory language gives the Corps the flexibility to utilize test construction in evaluating the solution proposed. We will be submitting a report proposal to the Corps on this point at our next meeting on March 22. We hope that the Corps will agree with our interpretation of the law on this point after further reflection.

We want to thank you, Chairman Inouye and Senator Domenici and Senator Bingaman and Congressman Richardson for all the help you have given us. We urgently entreat you to continue to follow this matter closely. We strongly believe that continuing expressions of Congressional concern and support for a solution will aid the parties in reaching one that gives us justice and is consistent with the public interest. Thank you Mr. Chairman.

SUMMARY OF DAMAGES

The Pueblo de Cochiti damages resulting from a high water table on their irrigated lands are estimated as follows:

Crop losses 1976 through 1986	$1,123,119.53
Crops losses projected for the five-year period 1987 through 1991	754,906.29
Subtotal of crop losses	$1,878,025.82
Losses associated with replacement of irrigation canals, farm access roads, and fencing	770,300.00[1]
Total	$2,648,325.82

All of the above damage estimates are calculated in 1987 dollars.

CROP LOSS DAMAGES BY INDIVIDUALS

Individual Pueblo members and the Pueblo de Cochiti as a governmental unit suffered crop damage losses. Losses on lands that were not assigned to individuals were attributed to the Pueblo. Estimated damages by individuals and by the Pueblo are listed in table 1. A listing of estimated damages by individuals and by the Pueblo by years is presented in Attachment B.

The first column lists the estimated dollar damage incurred during the specified year. The second column lists the damage for the year into 1987 dollars.

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[1] This information was provided by The Branch of Water Protection, Bureau of Indian Affairs, Albuquerque Area Office. Supporting information is in Attachment A.

INTERIM AGREEMENT PENDING FINAL
SETTLEMENT RE: COCHITI SEEPAGE

The Pueblo de Cochiti and U.S. Army, Corps of Engineers, agree as follows:

1. The Corps agrees to contract for no less than $750,000 with the Pueblo de Cochiti to design a sub-surface drainage system to correct the high water table on the 615 acres of presently affected agricultural lands of the Pueblo as follows:

A. Design, construction and monitoring of test systems;

B. Based on information derived from test system construction and performance complete a final design subject to review and approval of the Corps, which approval shall not be unreasonably withheld, for an entire system including a construction cost estimate for all direct and incidental costs, including reclamation.

2. The parties agree to use best efforts to enter into a comprehensive agreement for settlement of this controversy.

Pueblo de Cochiti	Corps of Engineers, U.S. Army
Date:	Date:

Economic Evaluation of Damages from the Loss of Crops, Roads, Canals, and Fences Resulting from a High Water Table on Irrigated Lands, Pueblo de Cochiti

For the Period 1976 through 1991

April 1987
(Revised April 24, 1987)

By

Southwest Research and Development Company (SRD)
1825 Imperial Ridge
Las Cruces, New Mexico 88001

SUMMARY OF DAMAGES

The Pueblo de Cochiti damages resulting from a high water table on their irrigated lands are estimated as follows:

Crop losses 1976 through 1986	$1,124,963.35
Crops losses projected for the five-year period 1987 through 1991	758,722.43
Subtotal of crop losses	$1,883,685.78
Bosque grazing losses 1977 through 1986	28,376.00
Bosque grazing losses projected for the five-year period 1987 through 1991	15,592.00
Subtotal	$43,968.00
Losses associated with replacement of irrigation canals, farm access roads, and fencing	770,300.00[1]
Total	$2,697,953.78

All of the above damage estimates are calculated in 1987 dollars.

CROP AND BOSQUE GRAZING LOSS DAMAGES BY INDIVIDUALS AND PUEBLO

Individual Pueblo members and the Pueblo de Cochiti as a governmental unit suffered crop damage losses. Losses on lands that were not assigned to individuals were attributed to the Pueblo. Estimated damages by individuals and

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[1] This information was provided by The Branch of Rights Protection, Bureau of Indian Affairs, Albuquerque Area Office. Supporting information is in Attachment A.

by the Pueblo are listed in table 1. A listing of estimated damages by individuals and by the Pueblo by years is presented in Attachment B.

The first column in table 1 lists the estimated dollar damage incurred during the specified year. The second column lists the damage for the year into 1987 dollars.

INTRODUCTION

Southwest Research and Development Corporation (SRD) was asked in January of 1987 to perform an economic analysis of crop losses (damages) suffered by the Pueblo de Cochiti because of an elevated water table resulting from seepage from the Cochiti Reservoir. The Bureau of Indian Affairs estimated the dollar value of losses associated with replacement of farm canals, roads, and fencing damaged by the elevated water table. A summary of these estimated damages is included in this report, but the responsibility for these estimates remains with the BIA.

SRD used standard economic procedures to estimate the losses to individual Tribal members with assigned irrigated lands and to the Pueblo of Cochiti for lands not assigned. Crop budgets were developed based on farming practices and yields typical for the area. The budgets were designed to measure the economic benefit derived from growing crops on the Pueblo. The loss (damage) estimate is the difference between the economic benefits the Pueblo could have received from growing crops in the absence of any damages resulting from a high water table and the income received.

SRD relied on the Pueblo de Cochiti for information on damage claims for the period 1976 through 1979 and for verification of the names assigned to specific tracts of land. The BIA furnished the maps and information on water table depths and the physical impact of crop damage resulting from elevated water tables.

Table 1. Listing of Estimated Losses of Crop Income Benefits Resulting from an Elevated Water Table on Pueblo de Cochiti Irrigated Lands, 1976 through 1991 (1987 dollars).

NAME	Year 1976-79	1980-86	1987-91	Total 1976-91
Ahsona, Andrew	15,669.86	22,301.29		37,971.15
Arquero, Johnnie		1,663.60	715.63	2,379.23
Arquero, Pat & Salvador Romero		80.01	0.00	80.01
Arquero, Sam	18,214.22	13,183.57	22,343.60	53,741.39
Chalan, Candelaria		2,586.07	5,009.40	7,595.47
Chalan, Daniel	1,567.26	6,034.19	11,688.66	19,290.12
Chalan, Mark		6,239.44	12,086.24	18,325.67
Chavez, Francisco		3,273.52	1,552.07	4,825.58
Chavez, Frank		925.56	0.00	925.56
Cordero, George		18,981.59	8,746.61	27,728.20
Cordero, Joe L.		13,450.81	6,154.43	19,605.24
CrazyHorse, Cippy		2,339.79	4,532.35	6,872.14
Herrera, Arnold	4,001.88	5,850.77	3,188.45	13,041.10
Herrera, Delfino		7,763.45	3,339.61	11,103.06
Herrera, Jose D.		0.00	0.00	0.00
Herrera, Lawrence		873.85	843.97	1,717.82
Herrera, Steven		8,436.77	4,855.96	13,292.73
Martin, William	17,115.60	58,209.67	34,238.75	109,564.03
Naranjo, Louis	525.28	21,406.14	11,140.43	33,071.85
Naranjo, Sandy		2,677.49	1,350.36	4,027.84
Ortiz, Guadalupe	5,530.43	26,182.66	11,291.07	43,004.17
Pecos, Al		0.00	0.00	0.00
Pecos, Nate & Paul Trujillo	56,207.35	41,152.35	15,902.92	113,262.62
Quintana, Delfin	10,044.78	6,781.42	14,710.20	31,536.41
Quintana, Joe A.	121.55			121.55
Quintana, Joseph C.		0.00	0.00	0.00
Quintana, Joseph U.	0.00	13,196.17	11,767.60	24,963.77
Quintana, Joseph U. & Delfin Quintana		10,788.43	2,231.66	13,020.09
Quintana, Silviano	85,955.30	183,311.41	83,602.11	352,868.83
Romero, Joe A.		2,024.99	3,975.73	6,000.72
Romero, Sammy		2,539.89	4,293.79	6,833.68
Suina, Cre		1,683.01	3,260.11	4,943.12
Suina, Ernest	10,513.54	26,426.38	12,483.79	49,423.71
Suina, Jimmy		0.00	0.00	0.00
Suina, Jose Rey		1,970.35	3,816.70	5,787.05
Suina, Marcello		1,260.95	5,311.58	6,572.52
Suina, Octavio	4,045.94	13,818.79	7,303.60	25,168.33
Suina, Rudy		10,587.13	8,439.72	19,026.85
Suina, Solomon		0.00	0.00	0.00
Tribe		327,873.23	435,762.32	763,635.56
Trujillo, Onofre	11,745.01			11,745.01
Trujillo, Paul		11,361.06		11,361.06
Trujillo, Ray		6,469.54	2,783.01	9,252.55
Tot__	241,258.00	883,705.35	758,722.43	1,883,685.79

PROCEDURES AND SOURCES OF INFORMATION
FOR ESTIMATING CROP LOSS DAMAGES

Information on Water Table

Shortly after the closing of the gates of the Cochiti Dam, the Pueblo de Cochiti began experiencing crop losses due to a rising high water table beneath their irrigated lands. In response to this problem, the BIA began installing piezometers to monitor the water table. The number of piezometers installed increased as the extent of damage became increasingly apparent. By 1980, the BIA had installed a sufficient number of piezometers and maintained records of readings to prepare a map of the water table on an annual basis for all of the Pueblo's irrigated lands north of the confluence of the Santa Fe River. Information on water table depths for 1976 through 1979 is limited. The water table maps prepared by the BIA are in Attachment C.

The maps in Attachment C record the water table by categories of 0 to 20 inches below the surface of the land, 20 to 36 inches, and 36 to 48 inches. Areas of irrigated lands not listed in one of the above categories had a water table depth in excess of 48 inches.

The water table readings tended to fluctuate throughout the year. The highest readings obtained were used in preparing the maps.

High water table is also a problem for Pueblo de Cochiti irrigated lands south of the Santa Fe River. However, piezometer readings were not taken in this area.

The BIA Southern Pueblo Agency conducted a soils investigation of Pueblo de Cochiti lands below the Cochiti Dam during November and December of 1986 and January 1987. This analysis included the lands below the confluence of the Santa Fe River. This soils investigation recorded the water table levels and provides the only detailed information on the impact of an elevated water table

on lands below the confluence of the Santa Fe River. A water table map for these lands for 1986 was prepared by the BIA and is included in Attachment C.

The BIA estimated that the water table in 1985 was similar to 1986 for the lands below the confluence of the Santa Fe River based on piezometer readings in 1985 relative to readings in 1986 for lands above the confluence of the Santa Fe River and on information from on-site inspections. Hence, the 1986 information was used as a basis of estimating impacts of elevated water tables in 1985 for these lands. No information on water table depths is available for use in estimating damages to these lands prior to 1985.

INFORMATION ON THE RELATIONSHIP BETWEEN DEPTH OF THE WATER TABLE AND RESULTING LOSSES OF CROP BENEFITS

High water tables in farming areas can result in crop losses for at least three reasons. The high water table does not allow sufficient drainage and aeration to sustain healthy plant roots. The degree of damage depends upon the type of soil, depth of the water table, and type of crop planted. Shallow rooted crops tend to suffer less damage than deeper rooted crops such as alfalfa or orchards.

A shallow water table can also bring salts to the surface and severely damage growing crops. A shallow water table can make it difficult or impossible to work a field or travel to and from fields with farm equipment without running the risk of getting bogged down in wet areas. Also, a shallow water table in part of a field may make it uneconomical to farm the entire field, particularly if the field size is small or access to dry areas of the field is restricted or difficult.

Any field or area within a field with a water table of less than 36 inches was judged to be unfarmable based on information provided by the BIA. A partial

explanation of the bases for this is in Attachment D. Fields having a water table of 36 to 48 inches was determined to result in a loss of 40 percent of an alfalfa crop and 30 percent loss of other crops commonly grown on the Pueblo. It was assumed that no damage to crops was incurred if the water table depth was in excess of 48 inches.

Fields or areas within fields that had water tables greater than 48 inches but were accessible only by transversing areas having water tables of less than 36 inches were assumed to have the same level of damages as those fields within the 36-inch water table limit because of potential access problems. Also, if a field of 10 acres or less in size had a water table of less than 36 inches, the entire field was judged to be unfarmable due to economics of farming. Fields larger than 10 acres in size that had at least 75 percent of the area within the less than 36-inch water table zone, were judged to be unfarmable, also for economic reasons. No claim of damages was made for lands that were accessible and had water table depths greater than 48 inches.

ECONOMIC ANALAYIS OF CROP LAND LOSSES

Period from 1976 through 1979

Estimates of economic losses resulting from an elevated water table for the period from 1976 through 1979 were based in part from the claims made by individual Pueblo members filed in the United States District court. Copies of these claims are included in Attachment E. The difference in procedure for estimating losses for the 1976-79 period compared with later years was necessary because detailed information on the water table depth was not as abundant as during this early period.

The 1976-79 damage estimates contained in Attachment E, which were prepared by or on behalf of the individual Pueblo members, were modified by SRD as follows:

1. All claims made by Tribal members for depreciation of equipment were not considered by SRD as an additional loss (damage) since the loss associated with the use (or non use) of farming equipment was already included in the crop loss figures. The only exception to this was for Nate Pecos and Paul Trujillo, farming as a unit in their claim arising from an actual loss resulting from the sale of equipment they were unable to use. However, the amount of their claim was reduced by SRD from their specified amount of $2,388.72 to $1,979.00 to reflect the amount of loss covered in the crop loss portion of their claim for 1977 and 1978. The sale of equipment occurred in 1979 and was therefore listed as a damage claim in 1979.
2. The maximum amount of individuals claims judged to be supportable by SRD information could not exceed the loss estimated by using the information in the crop budgets developed by SRD. This adjustment was necessary because of some of the claims by Tribal members were based on yields in excess of those being obtained by Pueblo farmers.
3. If the amount claimed for loss of crop by individual Pueblo members was less than the amount indicated as a full loss in the SRD crop budget, the lower of the two amounts was claimed. This course of action was deemed appropriate based upon written notes on the claim forms prepared by individuals describing the amount of damage actually incurred due to the high water table.

Period from 1980 through 1991

Estimates of losses for the 1980 through 1986 period were developed from crop budgets, information on crops grown on each tract of land, and information on the water table associated with each tract of land.

The source of information on the water table and damages associated with water table levels was provided by the BIA as discussed earlier. Information on crops planted on each land tract was obtained from BIA records. Alfalfa was used as a proxy crop to assess losses for all land tracts for which there were no information with respect to the crop planted. For land on which farming was discontinued, the crop last planted on that tract was used as the basis for assessing losses for subsequent years.

Partial crop cost and return budgets were developed representing the typical farm size and farming practices used by the Pueblo during the 1976 to 1986 period. The average size of farm was less than 20 acres but most Pueblo members farmed as family units and often rented or traded for equipment use. Hence, the effective farm size with respect to equipment use probably ranges from 20 acres to possibly as many as 40 acres for specialized equipment such as hay balers.

The Pueblo de Cochiti members have historically used traditional farming methods consisting of small farms, small used equipment, very limited use of fertilizers and chemicals, and hand harvesting of most crops except alfalfa. All of the labor requirements are typically provided by family members and friends. A large percentage of the crops produced have been traditionally consumed by the farmer and his family or by other Pueblo Indians. Most of the agricultural products produced did not enter into commercial trade outside of the Pueblo. Much of the alfalfa and all of the pasture has been used to feed horses and cattle raised on Pueblo lands.

Historical BIA records indicate that alfalfa hay, chile, blue corn, white corn, pasture, orchards, and garden vegetables are the important crops that have been grown on the Pueblo. Crop cost and return budgets were prepared for alfalfa hay, irrigated pasture, blue/white corn, chile, and apples. Alfalfa hay was used as a proxie crop for all hay crops and chile and blue corn as a proxie for all garden crops.

The partial crop cost and return budgets and associated machinery and equipment tables are in Attachment F.

The budgets were prepared to estimate the dollar net benefits to the farm family from farming one acre of that crop assuming no damage associated with a high water table. The budgets were based on crop yields typical for the Pueblo area and include all costs Pueblo farmers typically incurred in producing that crop including allowances for machinery depreciation and amortization of establishment expenses for alfalfa, irrigated pasture, and apple orchard. No costs for labor and management and irrigation water were included in the crop budgets. The Pueblo de Cochiti farmers do not pay water district charges and labor, and management are provided by family and friends. Labor is not an economic cost assuming there are few or no alternative uses of the labor resource.

In order to simplify the budgeting process, the crop budgets were prepared using 1980 costs. These costs were assumed to be reasonable estimates of the costs for the 1976 through 1986 period. This procedure was deemed reasonable since the Pueblo farmers use very few purchased inputs and tend to purchase used farm equipment. Although costs were held constant, prices of farm products varied by year. A listing of the prices used is in table 10 of Attachment F. The budgets represent what might be described as average or typical conditions for the Pueblo. Actual losses or damages may vary by individuals.

Impact of Farmed Lands vs. Land Left Idle

Part of the lands for which damages are claimed were farmed or attempted to be farmed in the year for which damages were claimed. Other land tracts were not farmed. Economic losses were greater on those lands that were farmed and planted to annual crops than for those lands that would have been planted to those crops had they not expected a high water table to destroy the crops. This is logical since the loss for not planting is the net benefits derived from having raised and used (sold) a crop in the absence of any high water table damage. However, if farmers go to the expense of putting in a crop and still have nothing to harvest because of damage due to a high water table, they lose not only the net benefits they should have derived from farming but also the additional crop expenditures expended in a futile cause. Hence, the damage claims for crop losses took into account, based on the available information, whether the land tract was planted or not for each year for which damages are being claimed.

Forecasted Damages for 1987 through 1991

Expected crop losses were estimated for the 1987 through 1991 period under the assumption of this being a reasonable period of time to allow for correction of the situation. Crop losses for the 1987-91 period were derived by extending 1986 losses into the future.

Bosque Lands

The rising water table has also affected the economic productivity of the bosque lands. These lands are used for grazing, firewood, and recreation; however, only the damage due to lost grazing capacity has been estimated. All of the losses in grazing revenue on the bosque lands is accurable to the Pueblo as a governmental unit and has not been assigned to individuals.

The Pueblo has 275 acres of bosque lands north of the confluence of the Santa Fe River and 599 acres to the south for a total of 874 acres. The location of these lands are identified on the maps in Attachment C.

Bosque land grazing losses started occurring on the 275 acres lying north of the Santa Fe River in 1977 and have continued through 1986. Information was available to document losses for the 599 acres of bosque lands lying to the south for 1985 and 1986. Losses may have occurred for these lands prior to 1985 but information is not available to document claims; hence, no claims are made for these lands prior to 1985.

The grazing capacity of the bosque lands was estimated at .4 of one animal unit month per acre per year based on discussions with range scientists at New Mexico State University. Damage claims were arrived at by multiplying the loss capacity times the acreage times the monthly grazing value as listed in table 10, Attachment F. These losses were then adjusted to 1987 dollars. The damages claimed are listed in table 2. The method used to adjust the current year losses to 1987 dollars is explained in the following section.

Adjusting Damage Estimates to a 1987 Dollar Basis

To account for the time value of money, all crop and bosque grazing damage estimates were adjusted to a 1987 dollar basis through compounding losses in earlier years and discounting forecasted losses for the years 1988 through 1991. The yearly average interest rate received for 3-month U.S. Treasury Bills was used as the measure of the opportunity cost of the loss of use of the benefits until 1987, the assumed year losses will be settled. Rather than try to predict average Treasure Bill rates in the future, the 1986 average rate was used to discount future benefits. The average 3-month Treasure Bill rates and resulting compounding or discounting factors are listed in table 11 of Attachment F.

Table 2. Estimated Losses of Grazing Income for Bosque Lands, Pueblo de Cochiti, 1977-91.

Year	Acres	Monthly Grazing Capacity[1]	Monthly grazing Unit Value[2]	Current year dollars	1987 dollars
77	275	110.0	$13.00	$1,430	$ 3,389
78	275	110.0	15.00	1,650	3,713
79	275	110.0	15.00	1,650	3,465
80	275	110.0	15.00	1,650	3,152
81	275	110.0	13.00	1,430	2,445
82	275	110.0	10.00	1,100	1,650
83	275	110.0	10.00	1,100	1,496
84	275	110.0	10.00	1,100	1,375
85	874	349.6	10.00	3,496	3,985
86	874	349.6	10.00	3,496	3,706
Subtotal					$28,376
87	874	349.6	10.00	3,496	3,496
88	874	349.6	10.00	3,496	3,286
89	874	349.6	10.00	3,496	3,111
90	874	349.6	10.00	3,496	2,937
91	874	349.6	10.00	3,496	2,762
Subtotal					15,592
Total					$43,968

[1]Based on .4 of an A.U.M. per acre per year.

[2]Based on information contained in table 10, Attachment F.

A detailed listing of estimated damages by individual and by land tract and year crops planted, and if the tract was farmed for the years 1976 through 1986, is in Attachment G.

RESOLUTION

At a duly called meeting of the Council of the Pueblo de Cochiti held on the ___ day of _____, 1978, the following resolution was adopted.

WHEREAS, Cochiti Dam, constructed, operated and maintained by the Corps of Engineers, is located on the lands of the Pueblo de Cochiti; and

WHEREAS, problems have arisen with respect to irrigated lands, both Indian and non-Indian, near the downstream side of Cochiti Dam, where the water table has raised to the point where these lands cannot be farmed and are, therefore, essentially valueless; and

WHEREAS, the people at the Pueblo de Cochiti and its non-Indian neighbors near Cochiti are deeply concerned over this problem and there is strong indication that leakage from Cochiti Dam is the cause of such problem; and

WHEREAS, the Pueblo de Cochiti Council has made demand upon the Corps of Engineers to make such studies and investigations as are necessary to determine the cause or causes of such problem and to take any and all corrective action to solve such problem so that such irrigated lands can again be productive and that other lands are not endangered; and

WHEREAS, such studies and investigations have begun, but the Pueblo de Cochiti has been informed by the Corps of Engineers that funds are not now available to complete such studies, investigations and corrective action, and that such studies, investigations and corrective action must be accomplished in the immediate future; and

WHEREAS, all parties concerned with this problem need to make urgent request to the New Mexico Congressional delegation that the Congress provide such funds to the Corps of Engineers as are necessary to complete such studies, investigations and corrective work, in order to fully protect the lands of the Pueblo and the lands of its neighbors;

NOW, THEREFORE, BE IT RESOLVED that the Pueblo de Cochiti Council does hereby strongly urge the New Mexico Congressional delegation of the necessity of funding for the purposes heretofore set forth in this resolution and directs the Governor of the Pueblo de Cochiti to bring

this matter to the immediate attention of the Congressional delegation.

ATTEST:

_____ _____
SECRETARY GOVERNOR

CERTIFICATION

I hereby certify that the foregoing Resolution was duly adopted at a meeting of the Pueblo de Cochiti Council held on the _____ day of _____, 19_____, at which a quorum was present, _____ voting for and _____ opposed.

ATTEST:

_____
GOVERNOR

_____
SECRETARY

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO

PUEBLO DE COCHITI, ANDREW AHSONA, JOHNNY ARQUERO, SAM ARQUERO, FRANCIS CHAVEZ, DANIEL CHELAN, GEORGE CORDERO, ARNOLD HERRERA, NESTOR HERRERA, STEPHEN HERRERA, WILLIAM MARTIN, LOUIS NARANJO, SANDY NARANJO, GUADALUPE ORTIZ, NATE PECOS AND PAUL TRUJILLO, farming as a unit, DELFIN QUINTANA, JOE A. QUINTANA, JOSEPH U. QUINTANA, SILVIANO QUINTANA, ERNEST SUINA, OCTAVIO (TOBY) SUINA, ONOFRE TRUJILLO, PAUL TRUJILLO, and RAY TRUJILLO,

Plaintiffs,

v. Civ. No. 85-1552 JC

UNITED STATES OF AMERICA and DEPARTMENT OF DEFENSE, SECRETARY OF DEFENSE, CASPER WEINBERGER, DEPARTMENT OF THE ARMY, SECRETARY OF THE ARMY, JOHN O. MARSH, AND CORPS OF ENGINEERS, CHIEF OF ENGINEERS, LT. GENERAL ELVIN R. HEIBERG, III,

Defendants.

AFFIDAVIT

STATE OF NEW MEXICO

SS.

County of Bernalillo

COMES NOW, JOHN J. CUNICO, Chief, Planning Branch, Engineering and Planning Division, Albuquerque District, Corps of Engineers, being duly sworn and upon his oath, states:

I am Chief of the Planning Branch, Engineering and Planning Division in the Albuquerque District of the Corps of Engineers. I am responsible for advising the Albuquerque District Engineer on the regulation of the Corps reservoirs within the Civil Works boundaries of the Albuquerque District. I usually represent the Corps of Engineers in meetings with the Bureau of Reclamation, the Rio Grande Compact Commission, and the Interstate Stream Commission. I have been Chief of the Planning Branch since 1982. From 1976 to 1982, I had the same responsibilities as Chief of the Floodplain and Hydraulics Branch. I have been involved with the decisions to store flood water in Cochiti Lake during the recent years of unusually high runoff, and I am, therefore, familiar with the wet fields below Cochiti Dam.

Two statutes govern the design, construction and operation of Cochiti Lake. The authorizing legislation, Public Law 86-645 dated July 14, 1960, states that the reservoir would be operated for flood control and sediment control. The legislation also included the authorization to store water for recreation and fish and wildlife propagation provided that such water was obtained from sources outside the Rio Grande drainage basin.

Public Law 88-293 dated March 26, 1964, authorized that San Juan-Chama water be made available for the recreation pool in Cochiti Lake. The authorization was for approximately 50,000 acre-feet of water for the initial filling of a permanent pool of 1,200 surface acres, and thereafter sufficient water annually to offset evaporation.

The U.S. Army Corps of Engineers has the authority to control floodwaters on the nation's river systems (Flood Control Act of 1936, Flood Control Act of

87-538 0 - 88 - 3

1937, and 33 U.S.C. Sec. 701b). In each of thirty-five Districts, District Engineers, as delegatees of the Secretary of the Army, have the discretion to implement appropriate flood control measures within the authority established by Congress, and geographically, within what are known as the District's Civil Works boundaries. For the Albuquerque District, the current District Engineer is a Lieutenant Colonel in the U.S. Army. He is in charge of the operation and maintenance of the Corps of Engineer reservoirs within the Civil Works boundaries of the Albuquerque District. The District Engineer, therefore, has the authority and the discretion to determine the amount of water to be stored for flood control in Cochiti Lake within the guidelines of P.L. 86-645. Public Law 86-645 states that during the months of July through October no water will be withdrawn from storage in Cochiti Lake when the inflow is less than 1,500 cubic feet per second and there is more than 212,000 acre-feet of storage available for regulation of summer floods. There can be variance from the operating criteria delineated in P.L. 86-645 with the advice and consent of the Rio Grande Compact Commission. The amount of water that can be released from Cochiti Lake is also related to the rate of flow that can be carried by the Rio Grande channel and the status of project storage at Elephant Butte and Caballo Reservoirs. These are all factors to be considered by the District Engineer in exercising his discretion concerning the operation of Cochiti Lake. Other than during the four months of July through October, which are suject to the dictates of P.L. 86-645 as described, the District Engineer and his staff decide, based on their judgment, the rates of release considering all relevant factors.

The amount of water stored in Cochiti Lake varies with the seasons with the greatest amount of water generally being stored during and shortly after

the spring runoff. At the end of June 1979, there was 175,200 acre-feet of water in Cochiti Lake. At the end of the month of May for the years 1980, 1983 and 1984, the amount of water in Cochiti Lake ranged from 62,797 acre-feet to 75,429 acre-feet. From March 1985 until September 20, 1986, the water stored in Cochiti Lake continuously exceeded the recreation pool level and at one point exceeded 300,000 acre-feet. There is a correlation between the amount of water stored in Cochiti Lake and the rate of seepage. The rate of seepage increases as the amount of water stored in Cochiti Lake increases and as the duration of storage increases. This has been particularly evident during the recent period of unusually high runoff when there has been a large amount of flood water stored in Cochiti Lake for an extended period of time.

The dam for Cochiti Lake was designed as an earthfill dam. The design of the dam began with the selection of a site which was based on extensive subsurface investigation to assure that the Corps understood foundation and geologic conditions in the area and specifically at the site. Since earthfill dams are constructed of native materials, available construction materials near the project were investigated during the initial exploration program. Analysis of the foundation and the available materials was continued throughout all stages of design. Later, foundation materials exposed during construction were studied and additional investigations were performed as a need for additional information was indicated. In [illegible]ace, the subsurface exploration program for Cochiti Dam was very extensive.

The design of Cochiti Dam was accomplished by means of one general design memorandum and eight detailed design memorandums. The design effort took several years and at each stage the results were reviewed by higher authority

within the Corps of Engineers to assure a safe and functional structure. Each design memorandum was approved by the Southwestern Division Office in Dallas, Texas, and by the Office of the Chief of Engineers in Washington, D.C. The plans and specifications were approved by the Southwestern Division Office.

In order to provide for monitoring the operating structure, an instrumentation system was designed into Cochiti Dam to indicate both internal and external movement of the embankment, water pressure, seepage, and any seismic induced forces. The instruments are read at frequent intervals, and the resultant data are analyzed for indications of malfunction.

Most structures such as Cochiti Dam which impound a pool of water will affect the groundwater table in adjacent areas. The Corps of Engineers exercised discretion in the design of the dam and specifically in determining the type of dam to construct for the impoundment of water at Cochiti Reservoir. Seepage is a natural result of impounding water behind earthfill dams and is consistent with the principles of hydraulics and soil mechanics. Two of the nine Design Memorandums discuss the seepage that would occur from Cochiti Dam.

On 11 April 1980 Pueblo de Cochiti, on behalf of individual Cochiti farmers, submitted a claim for crop damage for the years 1976, 1977, and 1978. (Exhibit A). An additional claim for crop damage in 1978 was submitted on 24 April 1980. (Exhibit B). A claim for 1979 crop damage was submitted on 4 November 1980. (Exhibit C). All of the claims were damages to fields that were flooded due to an elevation in the groundwater table downstream from Cochiti Lake. By letter dated 7 November 1980 (Exhibit D), the Cochitis'

attorney was asked by the Albuquerque District Counsel whether the claims were submitted under the Federal Tort Claims Act, under the Fifth Amendment as a taking of property, or under some other Constitutional or statutory provision. By letter dated 16 December 1980 (Exhibit E), the attorney responded and stated that the claims were submitted under the Fifth Amendment. Several meetings were held concerning these claims. However, the Cochitis were informed that there was no statutory authority under which the claims could be paid. By letter dated 28 May 1984 (Exhibit F), the attorney for the Cochitis submitted a claim for damage to Cochiti land in the amount of $10,000,000.00. The letter stated that the claim was an amendment of earlier claims. No reference was made to the Federal Tort Claims Act or any other statutory basis for the claim.

JOHN J. CUNICO

Subscribed and sworn to before me this 19th day of May 1987.

NOTARY PUBLIC

My Commission Expires:

October 21, 1990

John M. Bowannie
Governor

Alvin Arquero
Lt. Governor

Pueblo de Cochiti

Andrew Quintana
Treasurer

Gertrude Lovato
Secretary

BOX 70
COCHITI, NEW MEXICO 87041
Telephone: 505-465-2244

April 11, 1980

Bernard J. Roth, Colonel, CE
District Engineer
Albuquerque District
Corps of Engineers
P.O. Box 1580
Albuquerque, New Mexico 87103

RE: Claims by Pueblo de Cochiti for Damages Caused by Seepage From Cochiti Dam

Dear Colonel Roth:

The Pueblo de Cochiti Council has authorized me to submit claims vs. the Corps of Engineers for damages, as set forth below, arising from the rise in water table under certain lands of the Pueblo de Cochiti located adjacent to or below Cochiti Dam, caused by seepage from Cochiti Dam.

These claims are for damages incurred by individual Cochiti farmers for the calendar years 1976, 1977 and 1978. Claims for 1979 will be submitted shortly, as soon as sufficient data is available from the farmers and the Bureau of Indian Affairs.

Any further claim for permanent or temporary damage is specifically reserved for the Pueblo, for the reason that at this time it cannot be predicted with any degree of certainty as to whether the drainage system presently being constructed by the Corps of Engineers in this problem area will function as represented by the Corps. Should such drainage system effectively drain the areas in question, then it can be assumed there will be no further crop losses due to the high water table; to the contrary, should it not function adequately then we can expect additional crop losses in the years to come, and we will submit further claims as appropriate.

In submission of these claims, certain economic data was used, as follows:

1. ALFALFA - Design Memorandum No. 16, Detail Design Cochiti Farmland Subdrain System, July, 1979, prepared by your office, at page 4, sets forth that alfalfa will produce 1.25 tons per cutting, with an average of four (4), with alfalfa selling at $25.00 per ton. We have incorporated this data into all claims relating to loss or damage to Alfalfa crop.

2. PASTURE - Information provided by the Southern Pueblos Agency, Bureau of Indian Affairs shows that the carrying capacity of pasture land at Cochiti affected by the seepage is one Animal Unit Month (AUM) per acre, with an AUM value of $30.00, with an estimated pasturage season of five (5) months.

3. HAY - Precise economic data is not available for hay. However, the assumption is made that hay has an economic value of one-half of Alafalfa.

4. CORN, MIXED CROPS AND ORCHARDS - Precise economic data is not available for these crops. Therefore, the claim is based on a different theoretical basis, to-wit: A return on land value. We are assuming that the affected land, if alienable, has a value of $3000.00 per acre and that the investment of proceeds of sale would create an interest return of 10%.

The claim is made by the Pueblo as representative of the individual Cochiti farmers, whose names are attached to this claim on the summary sheet labelled Exhibit "A". At such time as the claim is adjudicated or settled, we would expect that both the Pueblo and the individual farmers would sign appropriate releases, in order to assure the Corps of Engineers that cumulative future claims for the same items are not filed.

Attachments to this letter, labelled, collectively, Exhibit "B", set forth the details of the claim of each individual farmer. Attached to this letter as Exhibit "C" is a resolution of the Pueblo de Cochiti Council authorizing the filing of these claims. Also attached for your information and to assist your office in processing these claims, is a series of maps showing the location of the tracts of land for which damage is claimed.

Your prompt attention to these claims will be greatly appreciated. We will be available to discuss these claims with representatives of your office.

Very truly yours,

John M. Bowannie, Governor
PUEBLO DE COCHITI

RESOLUTION

At a duly called meeting of the Pueblo de Cochiti Council held on the 11 day of APRIL, 1980, the following Resolution was adopted.

WHEREAS, individual Cochiti farmers have suffered damages for the years 1976, 1977 and 1978, caused by the rise in the water table under lands farmed by them, such rise in the water table being the result of seepage from Cochiti Dam, a Corps of Engineers Project; and

WHEREAS, claims for the calendar year 1979 and subsequent years and for damage to land have been reserved for future filing: and

WHEREAS, the said farmers have authorized the Pueblo de Cochiti to file such consolidated claims on their behalf, against the Corps of Engineers, for such damage; and

WHEREAS, the consolidated claims have been presented to the Pueblo de Cochiti Council and the Council approves the same, for submission to the Corps of Engineers;

NOW, THEREFORE, BE IT RESOLVED that the Governor of the Pueblo de Cochiti be and he is hereby authorized and directed to file the said consolidated claims with the Albuquerque District, Corps of Engineers.

John M. Bowannie
GOVERNOR

ATTEST:

Alvin Cajemo Lt. Gov.
SECRETARY

CERTIFICATION

I hereby certify that the foregoing Resolution was duly adopted at a meeting of the Pueblo de Cochiti Council held on the 11 day of APRIL, 1980, at which a quorum was present, 31 voting for and 0 opposed.

John M. Bowannie
GOVERNOR

ATTEST:

Alvin Cajemo Lt. Gov.
SECRETARY

EXHIBIT "C"

AUG 11 1980

Mr. John Bowannie
Governor, Pueblo of Cochiti
P. O. Box 70
Cochiti, NM 87041

Dear Governor Bowannie:

Reference is made to crop loss damage claim for Calendar Year 1979, which I have reviewed and agree with the claims as provided. However, I disagree with the claims made for 1976, 1977, and 1978 in the amount of $180.00. My personnal opinion on this matter, is that crop loss for those years are by far greater than the amount indicated. I for one, must stand firm with the initial amounts submitted to the crops for their consideration. I am quite confident that I share the feelings of other farmers who are also affected.

Although, this report has reference to Calendar Year 1979 crop loss, I feel that I should share with you my frustrations experienced with crop loss in Calendar Year 1980, which I'm sure has had its initial deteriorating affects since 1976 to the present time. During a normal year, I average atleast 465 bales per cut 1,395 per season, however, this year the output hasn't been encouraging. My first cut this year produced thirteen (13) bales and there is no indication that 2nd cut will be any better and at this late date it is doubtful that I would come anywhere close to 150 bales.

With this bleak picture, I would encourage the tribe as well as those presently affected to stand firm and continue to bring pressure against the crops and others responsible for the construction of the dam.

Sincerely yours,

766-3377

Councilman and Farmer

YEAR: 1976-1977

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
Joe A. Quintana	10c	2.5	see note	Corn and Garden Crops	$50.00	NOTE: only damage claimed is for cost of plowing land @ $25.00 for each year

YEAR: 1977

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
ARNOLD HERRERA	5c	1.5	1.5	Corn (White and Blue)	$450.00	
				Garden crops and fruit trees (10 fruit trees	$300.00 (1)	
1978						
ARNOLD HERRERA	5c	1.5	1.5	Same use as in 1977	$450.00	
					$300.00 (1)	

(1) Fruit Orchard Damage computed on the basis of 10 fruit trees with 20 bu. per tree @ $1.50 selling price per bu.

YEAR: 1976

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
ONOFRE TRUJILLO		5.0	3.0	Blue and White Corn and Pumpkins	* 900.00	* 50.00 claimed as costs of plowing the land
1977						
ONOFRE TRUJILLO		5.0	4.0	Blue and White corn and assorted garden crops.	1200.00	* 35.00 claimed as costs of plowing the land.
1978						
ONOFRE TRUJILLO		5.0	5.0	Blue and White corn and assorted garden crops.	1500.00	* 35.00 claimed as costs of plowing

YEAR: 1977

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
NATE ACOS and PAUL TENJINO, farming as a unit	5	6.7	6.7	Alfalfa	$2512.50	1977 and 1978 Combined -
	6	8.2	8.2	"	3075.00	Purchased the following equipment from loan proceeds - on April 29, 1977.
	6e	10.0	10.0	"	3750.00	1. Ferguson 35 6 Speed Tractor
	9d	10.0	10.0	"	3750.00	2. Seven (7) foot Massey-Ferguson mower
	8	16.7	16.7	"	6261.50	3. Massey-Ferguson baler
				TOTAL	$19350.00	4. 5 bar Massey-Ferguson Rake.
						all for the purchase price of $10,638.72. We were unable to use any of this equipment in 1977 and 1978 and sold it for $8250.00 on July 30, 1979. - our claim is $10,638.72
						8250.00
						$2388.72
1978						
NATE ACOS and PAUL TENJINO, Farming as a unit	The same claim is made for Crop Loss as was made for 1977				$19350.00	

YEAR: 1976

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
William Martin	2f	10.0	5.0	corn (total loss)	$1500.00	for 1976, 1977 and 1978 - Purchased a tractor in 1974, Ford Series 2000, for $5000.00 with a useful life of 10 years. - claim is for $500.00 per year for [redacted] three years. Purchased Ford Baler, mower and Rake in 1976 for purchase price of $8296.32 with useful life of 10 years - claim is for $829.68 for [redacted] three years. Purchased a [redacted] disc harrow for $505.00 a plow for $500.00 and a cultivator for $400.00, all with useful life of 10 years. Claim is for $140.50 for each ~~of the three years~~ 1977 and 1978.
1977						
William Martin	1g	5.0	5.0	Alfalfa (25% loss)	468.75	
	2f	10.0	10.0	" "	937.50	
	2g	~~10.0~~	~~10.0~~	~~" "~~	~~937.50~~	
1978						
William Martin	1g	5.0	[redacted]	Alfalfa (total loss)	1875.00	
	2f	10.0	10.0	" "	3750.00	
	2g					

TOTAL CLAIM - 1976 [redacted] 2829.32
1977 2876.07
1978 7094.82
$12800.21

YEAR: 1976

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
SAM ARQUERO	16f	5.2	5.2	alfalfa	* 1950.00	Purchased 1960 tractor in 1976 for *1800.00, but unable to use on tract 16f for all three years. with 10 year usable life, claim is for 180.00 per year for 1976, 1977 and 1978. = *540.00
1977						
SAM ARQUERO	16d	4.5	2.25	alfalfa	843.75	
	16e	7.0	4.0	alfalfa	1500.00	
	16f	5.2	5.2	alfalfa	1950.00	
1978						
SAM ARQUERO	16d	4.5	2.25	alfalfa	843.75	
	16e	7.0	5.0	alfalfa	1875.00	
	16f	5.2	5.2	alfalfa	1950.00	
				TOTAL	* 10894.50	

YEAR: 1978

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land		Crop Loss Damage Claimed	Other Damage Claimed
[redacted] ANDREW AHSONA	14	4.0	4.0	Alfalfa	50% loss	$ 750.00	Purchased Tractor, Ford Diesel, in 1974 w/ useful life of 10 yrs. for $5495.00 plus mower for $862.00 plus rake for $900.00. Unable to use this equipment for 75% of time for which claim is made for $1000.00 damage
	16	4.3	4.3	"	"	806.25	
	18	4.9	4.9	"	"	918.75	
	28	10.2	10.2	"	75% loss	2868.75	
					TOTAL	5343.75	

YEAR: 1978

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
DANIEL CHELAN	*	17	13	Alfalfa + corn		* 300.00 plowing cost for 10 acres 60.00 cost for seed + disc.

* unnumbered tract below Bureau of Reclamation office on South side of Rio Grande.

YEAR: 1976

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
JOSEPH U. QUINTANA 1977	19a	17.1	17.1	Pasture	$ 2250.00	
JOSEPH U. QUINTANA 1978	19a	17.1	17.1	Pasture	$ 2250.00	
JOSEPH U. QUINTANA	19a	17.1	17.1	Pasture	$ 2250.00	

YEAR: 1976

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
Saviano Quintana	13b	11.6	3.0	Alfalfa	$1125.00	I purchased a new tractor in 1973 for $8000.00. This tractor has a 10 year useful life. In 1976, the depreciated value was $5000.00 and I was unable to use the tractor for 40% of the time. My claim for this loss of use is 40% x $800.00 or $320.00
	13c	5.0	2.5	"	937.50	
	10d	10.0	5.0	"	1875.00	
	11	19.0	-0			
	12a	10.0	10.0	"	3750.00	
	15a	10.0	5.0	"	1875.00	
	2e	0.8	0.8	Fruit Orchard	1500.00(1)	
	12b	9.7	5.0	Sodan Grass	937.50(2)	I purchased other equipment in 1965, which was fully depreciated in 1976, with, however, a salvage value of $5000.00. My claim for loss of use of this equipment is 40% x $500.00 or $200.00
					SUBTOTAL $12,000.00	

TOTAL CLAIM = $12,520.00
1. Crop Damage = 12,000.00
2. Equip. Damage = $520.00

(1) Fruit Orchard damage computed on the basis of 50 trees, with 20 bu. per tree @ $1.50 selling price per bu.
(2) Sodan grass computed on same basis as hay - see letter from Gov. Bowannie to Col. Roth.

REPRODUCED AT GOVERNMENT EXPENSE

YEAR: 1977

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
Silviano Quintano	15b	11.6	5.0	Alfalfa	1875 00	See this item re 1976 claim
	13c	5.0	5.0	Alfalfa	1875 00	
	10d	10 0	6 0	Alfalfa	2250 00	
	11	19.0	10 0	Alfalfa	~~3750 00~~	
	12a	10 0	10 0	Sudan Grass	1875.00(1)	
	15a	10 0	5.00	Alfalfa	1875 00	
	2e	0.8	0 8	Fruit Orchard.	1500.00(2)	
	12b	9.7	9.7	Alfalfa	3637.50	
					SUBTOTAL $ 18,637.50	

TOTAL CLAIM = $19,157.50
1 Crop Damage = $18,637.50
2 Equip. Damage = $520 00

(1) See note (1) re 1976 claim
(2) See note (2) re 1976 claim

YEAR: 1978

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
SILVIANO QUINTANA	15b	11.6	11.6	Alfalfa	4350.00	
	13c	5.0	5.0	Alfalfa	1875.00	See this item re: 1976 claim
	10d	10.0	7.0	Alfalfa	2625.00	
	11	19.0	12.0	Alfalfa	4500.00	
	12a	10.0	10.0	Sudan Grass	1875.00(1)	
	15a	10.0	5.0	Alfalfa	1875.00	
	2e	0.8	0.8	Fruit Orchard	1500.00(2)	
	12b	9.7	9.7	Alfalfa	3637.50	
				SUBTOTAL	= 22,237.50	

TOTAL CLAIM = $22,757.50
1. Crop Damage = $ 22,237.50
2. Equip. Damage = 520.00

(1) See note (1) on 1976 claim
(2) See note (2) on 1976 claim

YEAR: 1978

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
[redacted]						
OCTAVIO (TOBY) SUINA	2a.	3.0	2.0	Alfalfa	$750.00	

REPRODUCED AT GOVERNMENT EXPENSE

YEAR: 1978

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
Delfin Quintana	14b.	5.0	5.0	Alfalfa	$1875.00	
	13b.	5.0	5.0	Alfalfa	$1875.00	
	13c.	5.0	5.0	Sudan Grass	937.50	
				TOTAL	$4687.50	

YEAR: 1977

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
Guadalupe Ortiz	7	6.2	6.2	Alfalfa	581.25(1)	
1978						
Guadalupe Ortiz	7	6.2	6.2	alfalfa	* 2325.00	

(1) 1977 claim is 25% of full crop value because damage is estimated to be 25% of value of crop.

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MARTIN B. PASKIND
MYRA CLARK LYNCH
MARA C. DOW

OF COUNSEL
ROBERT J. TORVESTAD

April 24, 1980

Colonel Bernard J. Roth, CE
District Engineer
Albuquerque District
Corps of Engineers
P. O. Box 1580
Albuquerque, New Mexico 87103

Re: Claims by Pueblo de Cochiti for Damages Caused by Seepage from Cochiti Dam

Dear Colonel Roth:

In the letter of April 11, 1980, and accompanying materials, from Governor Bowannie to you, relating to the referenced subject matter, one claim was inadvertently omitted.

The omitted claim is that of Ernest Suina for 1978 in the sum of $4012.50. Attached is a sheet showing the tract and acreage damaged, the crop, and the sum claimed.

Very truly yours,

/s/ Philip Ashby

PHILIP R. ASHBY

PRA:ab

Encl.

cc: Honorable John Bowannie, w/encl.

YEAR: 1978

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
Ernest Swinn	21	6.2	6.2	alfalfa	$2325.00	
	32	9.5	4.5	alfalfa	$1687.50	
					$4012.50	

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OF COUNSEL
ROBERT J. TORRES

November 4, 1980

Bernard J. Roth, Colonel, C. E.
District Engineer
Corps of Engineers
P. O.Box 1580
Albuquerque, New Mexico 87103

Re: Cochiti Pueblo - Claims for damages for Losses due to Seepage from Cochiti Dam.

Dear Colonel Roth:

Enclosed are claims by Cochiti Pueblo, for and on behalf of farmers at Cochiti, for the year 1979. The basis for the claims is the same as for the 1976, 1977 and 1978 claims heretofore filed.

Please process these claims in an expeditious manner. If your staff has any questions or need further information, please have them give me a call.

Very truly yours,

PHILIP R. ASHBY

PRA:ab

Encls.

cc: Hon. John Bowannie

YEAR: 1979

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
JOSEPH U. QUINTANA	19a	17.1	17.1	Pasture	$2250.00	

Received 7-31-80

OK By J.U. Q

YEAR: 1979

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
OCTAVIO SUINA	2A	9.0	6.0	Alfalfa	#2250.00	
~~30~~	~~5.9~~	~~?~~	~~?~~	~~?~~		
~~31~~	~~8.2~~	~~?~~	~~?~~	~~?~~		

OBY:
Check and review the data provided - make any changes that you feel are necessary - these data is for 1979 "Seepage Claims"

Turn into Governor's office

Turned in 8-11-80

90

YEAR: 1979

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
GUADALUPE ORTIZ	7	6.2	6.2	Alfalfa	*2325.00	

G.O. —
Check and review the figures provided here - if you feel that changes are called for - do so. These figures are for 1979 "Seepage Claims" — Turn into the Governor's office

Issued with by hem 8-7-80

YEAR: 1979

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
WILLIAM MARTIN	1G	5.0	5.0	ALFALFA	1875.00	Using same basis as claims for 1976, 1977 and 1978, claim is made for $1470.13
	2F 2G	10.0	10.0	ALFALFA	3750.00	

WILLIE:

The figures provided herein are for 1979 "Seepage Claims" Any changes, deletions, etc. that you feel should be made, do so and turn into the Governor's office

Yours 8-12-80
William Martin

YEAR: 1979

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
SILVIANO QUINTANA	15B	11.6	11.6	Alfalfa	*4350.00	(1) See this item re: 1976, 1977 and 1978 claims
	13C	10.0	10.0	?	?	
	10D	10.0	10.0	Corn/chili	660.00	
	11	19.0	19.0	corn/chili	1254.00	(2) See this item re: 1976, 1977 and 1978 claims
	12A	10.0	10.0	corn/chili	660.00	
	15A	10.0	10.0	Alfalfa	3750.00	
	2E	0.8	0.8	Orchard	(2) 1500.00	
	12B	9.7	9.7	Alfalfa	3637.50	
					15811.50	

Sivi:
Check and review these data - submit any changes, deletions or corrections - these data are for 1979 "seepage claims" turn into Governor's Office

TOTAL CLAIM = 15811.50 crop damage
520.00 equipment damage
*16331.50 TOTAL

okay by Sivi on 8-22 OMS

93

87-538 O - 88 - 4

YEAR: 1979

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
SAM ARQUERO	16D	4.5	4.5	ALFALFA	843.75	as per claims for 1976, 1977 and 1978, claim is made for ~~$180.00~~ $180.00
	16E	7.0	7.0	"	1875.00	
	16F	5.2	5.2	"	1950.00	

SAM:

The figures provided herein are for the 1979 "Seepage Claims" - If you feel that any changes, deletions, etc. are to be made, do so and return it to the Governor's Office —

YEAR: 1979

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
ANDREW ANSONA	14	4.0	4.0	alfalfa 50% loss	750.00	As per 1978 claim, claim is made for $1000.00
	16	4.3	4.3	" "	806.25	
	18	4.9	4.9	" "	918.75	
	28	10.2	10.2	alfalfa 75% loss	2862.75	
Andrew Ansona	—	—	—		5343.75	
				(Maximum Allowable)	$14,000.00	ADDITION

ANDREW:

The figures that are provided herein are for the 1979 "Seepage Claims". If you feel that any changes, deletions, etc. are do made, do so and return it to the Governor's office ——

Thanks J. W. 8-25-80

8-25-80 jmb

YEAR: 1979

NAME	Tract No.	Total Acres	Damaged Acres	Crop or Use of Land	Crop Loss Damage Claimed	Other Damage Claimed
NATE PECOS and PAUL TRUJILLO farming as a unit	5	6.7	6.7	ALFALFA	$2152.50	
	6	8.2	8.2	"	3075.00	
	6D	5.0	5.0	"	1875.00	
	6E	10.0	10.0	"	3750.00	
	8	16.7	16.7	"	6262.50	
	9D	10.0	10.0	"	3750.00	
					$20865.00	

NATE & Paul:
The figures provided herein are for 1979 "Seepage Claims".
Any changes that you feel should be made, do so and turn into the Governor's office

96

Borland/vl/2725
Mr. Boardman
Mr. Coombes
Major Baines
Colonel Roth

SWACC

7 November 1980

Mr. Philip R. Ashby
Clayburgh, Ashby, Rose and Paskind, P.A.
Attorneys at Law
618 Manzano, N.E.
Albuquerque, New Mexico 87110

Dear Mr. Ashby:

This is in reference to the letter from Governor Bowannie to Colonel Roth dated April 11, 1980 and your letters to Colonel Roth dated April 24, 1980, October 2, 1980 and November 4, 1980, all of which concern claims for damages to certain lands below Cochiti dam caused by the elevation of the water table.

None of the letters state whether the claims are made under the Federal Tort Claims Act, under the Fifth Amendment taking of property or under some other constitutional or statutory provision.

Please advise under what authority these claims are made.

Sincerely,

JAMES A. BORLAND
District Counsel

Copy furnished:
Mr. Boardman

REPRODUCED AT GOVERNMENT EXPENSE

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OF COUNSEL
ROBERT J. TORVESTAD

December 16, 1980

James A. Borland, Esq.
District Counsel
Corps of Engineers
P.O.Box 1580
Albuquerque, N. M. 87103

Dear Mr. Borland:

This is in reply to your letter of November 7, 1980, inquiring into the legal basis of the claims of the Pueblo de Cochiti for damage incident to and arising from the seepage from Cochiti Dam, for the years 1976, 1977, 1978 and 1979.

In order to answer your inquiry, it is first necessary to set forth the background of the claims submission, in terms of the parties making the claims.

Legal title to all lands within the Pueblo de Cochiti Grant is in the Pueblo de Cochiti unless alienated pursuant to Federal law. The Pueblo de Cochiti Grant was confirmed by the Act of Congress of December 22, 1858 (11 Stat. 374). Patent was issued by the United States to the Pueblo de Cochiti on November 1, 1864. The Pueblo Lands Act of June 7, 1924 (43 Stat. 636), and the proceedings thereunder by the Pueblo Lands Board and the U. S. District Court, resulted in the alienation of certain small tracts known as "Private Claims" within the Grant to non-Indians. In addition, acreage within the Grant has been leased to Great Western Cities, Inc. of New Mexico, pursuant to 25 U.S.C., Sec. 415, and the Corps of Engineers has acquired, by easement, approximately 4000 acres for the construction, operation and maintenance of Cochiti Dam and Reservoir, and for public use areas appurtenant thereto. Finally, there are small acreages leased for public housing purposes. The full fee simple title to the remaining acreage within the Grant is vested in the Pueblo de Cochiti.

By Cochiti custom and tradition, individual members of the Pueblo have possessory rights to tracts of Pueblo de Cochiti land, known as "assignments". The holder of such an assignment

has the full use of such land and all income and profits therefrom, but the Pueblo has the inherent power to terminate assignments at any time. Under Federal law, the granting of these land assignments is not considered an alienation of land. Therefor, no BIA approval is necessary or required to make an assignment effective. While there is no non-Indian legal title exactly equivalent to the land assignment, it can be characterized as close to a perpetual leasehold with a condition subsequent.

The claims were filed by the Pueblo de Cochiti, as the landowner, both in its tribal capacity and on behalf of its assignment holders. The assignment holders have no absolute legal right to payment, since the distribution of monies received from a settlement of these claims will be a matter of internal Pueblo policy. The claims were broken down by tract (assignment) number and name of assignment holder for two reasons:

1. To identify the acreage, assignment holder and loss or damage claimed for each tract.

2. To assist the Pueblo in the allocation of payments, internally, to the various individuals holding the assignments.

In the settlement of these claims, we fully expect that any payments would be in exchange for a full release of claims for the appropriate time periods by the Pueblo and the individual Indian farmers.

It is the contention of the Pueblo de Cochiti, as owner of the land, and for and on behalf of the individual farmers of this land that the seepage from Cochiti Dam constitutes, legally, a "taking" under the Fifth Amendment to the United States Constitution, for which compensation must be paid.

First, it is clear that where Congress, by treaty or otherwise, has declared that Indians are to hold land permanently, compensation must be paid for a subsequent taking. Tee-Hit-Ton Indians v. United States, 348 U.S. 272, 75 S. Ct. 313, 99 L. ed 314 (1955).

Secondly, although we are aware that consequential damages are not compensable under the Fifth Amendment, there is ample authority for the losses due to seepage in this case being considered as a "taking" of property. Coats v. United States, 117 Ct. Cl. 795, 93 F. Supp. 637 (1950); Iowa-Wisconsin Bridge Co. v. United States, 114 Ct. Cl. 464, 84 F. Supp. 852 (1949); Atkinson v. United States, 68 F. Supp. 99 (D.C. Minn. 1946) and Richards v. United States, 152 Ct. Cl. 225, 282 F.2d 901 (1960).

I hope this answers your inquiry. If you have any questions, please advise.

Very truly yours,

PHILIP R. ASHBY

PRA:ab

cc: Hon. John Bowannie

ROTH, VAN AMBERG, GROSS,
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CARL BRYANT ROGERS (NM, MS)
F. JOEL ROTH (NM, ND)
RONALD J. VAN AMBERG (NM, CT)

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PORTLAND OFFICE
SUITE 200
820 S.W. SECOND AVENUE
PORTLAND, OREGON 97204
503/295-2051

May 28, 1984

Colonel Julian E. Pylant
District Engineer
Att: MR. JAMES A. BORLUND
District Counsel
Corps of Engineers
PO Box 1580
Albuquerque, New Mexico 87103

HAND DELIVERED

Received 29 May 84
1526
JAB

Re: Amendment of Claims for Damage to Lands of the Pueblo de Cochiti Pursuant to 32 CFR Part 536, specifically 32 CFR §536.6(d) and §536.6(f)(4).

Dear Colonel Pylant:

On April 11, 1980; April 24, 1980; and November 4, 1980, the Pueblo de Cochiti filed claims for damages to certain of its lands proximately caused by water seepage from the Cochiti Dam works and impoundment.

Except for the damage to lands used by Joseph U. Quintana, these claims have not been finally resolved or denied.

The Pueblo de Cochiti hereby amends it's pending claims by alleging that the amount of damage sustained by the Pueblo in proximate consequence of the negligent design, construction, operation and maintenance of the Cochiti works by the United States acting through its agents, the Corps of Engineers and its employees, total Ten Million Dollars ($10,000,000.00), which sum the Pueblo de Cochiti hereby demands in compensation from the United States.

In the alternative, the Pueblo de Cochiti herewith claims damages from recurring seepage to its lands proximately caused by the negligence of the United States acting through its agents, the Corps of Engineers and its

employees, in the design, construction, maintenance and operation of the recreational impoundment known as Cochiti Lake. The amount of said damages is Ten Million Dollars ($10,000,000.00), which the Pueblo de Cochiti hereby demands as compensation from the United States.

Sincerely yours,

ROTH, VAN AMBERG, GROSS,
AMARANT & ROGERS

By _____
MICHAEL P. GROSS,
Legal Counsel,
Pueblo de Cochiti

MPG/dst

cc: Governor John Bowannie
Jerry Straus
Barry Welch

The Pueblo de Cochiti also makes claim for the sum of $10,000,000 for damages from recurring seepage to its lands proximately caused by the negligence of the United States acting through its agents, the Corps of Engineers and its employees, in the design, construction, maintenance or operation of the recreational improvement known as Cochiti Lake and other unauthorized improvement of water.

This tort claim is submitted pursuant to Title 28, U.S.C. §§2675, 2679 and 1346(b) and 32 C.F.R. Part 36.

Sincerely yours,

ROTH, VAN AMBERG, GROSS,
AMARANT & ROGERS

By _____
MICHAEL P. GROSS

g/19/26

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO

PUEBLO DE COCHITI, ANDREW AHSONA
JOHNNY ARQUERO, SAM ARQUERO,
FRANCIS CHAVEZ, DANIEL CHELAN,
GEORGE CORDERO, ARNOLD HERRERA,
NESTOR HERRERA, STEPHEN HERRERA,
WILLIAM MARTIN, LOUIS NARANJO,
SANDY NARANJO, GUADALUPE ORTIZ
NATE PECOS and PAUL TRUJILLO, farming
as a unit, DELFIN QUINTANA, JOE A. QUINTANA,
JOSEPH U. QUINTANA, SILVIANO QUINTANA,
ERNEST SUINA, OCTAVIO (TOBY) SUINA,
ONOFRE TRUJILLO, PAUL TRUJILLO, and
RAY TRUJILLO,

Plaintiffs,

v. Civ. No. 85-1552

UNITED STATES OF AMERICA and
DEPARTMENT OF DEFENSE,
SECRETARY OF DEFENSE, CASPER
WEINBERGER, DEPARTMENT OF THE
ARMY, SECRETARY OF THE ARMY, JOHN O.
MARSH, AND CORPS OF ENGINEERS, CHIEF OF
ENGINEERS, LT. GENERAL ELVIN R. HEIBERG, III

Defendants.

AFFIDAVIT

STATE OF NEW MEXICO

SS.

County of Bernalillo

COMES NOW, DAVID E. PEIXOTTO, Lieutenant Colonel, United States Army, District Engineer for the Albuquerque District of the Corps of Engineers, being duly sworn and upon his oath, states:

On February 7, 1986, the Corps of Engineers through the United States Attorney for the District of New Mexico, filed with the Court a motion to dismiss and a brief in support of the motion to dismiss. The factual

CONTRACT NO: DA-29-066-CIV ENG-66-1

EASEMENT GRANT AND AGREEMENT

NEGOTIATED: G.W.H.

The Pueblo of Cochiti, a corporate community of Indians residing on communally-owned lands in the County of Sandoval, State of New Mexico, hereinafter referred to as the PUEBLO, with the consent and approval of the Secretary of the Interior of the United States, or his authorized representative, hereinafter referred to as INTERIOR, pursuant to the Act of Congress of February 5, 1948, 62 Stat. 17, 18 (1948), 25 U.S.C., Secs. 323, 324 (1964); and the Act of Congress of June 7, 1924, 43 Stat. 636 (1924), as amended, 25 U.S.C.A. Historical Note pp. 244, 250, 254 (1953), DOES HEREBY GRANT to the United States of America through the United States Army Corps of Engineers, United States Army Engineer District, Albuquerque, New Mexico, or its authorized representative, hereinafter referred to as the ENGINEERS, in CONSIDERATION OF THE SUM OF $195,200.00 paid by the ENGINEERS, for use in connection with the construction, operation and maintenance of the Cochiti Dam and Reservoir Project, Rio Grande Basin, New Mexico, as authorized by Title II, Sec. 203 of the Act of Congress of July 14, 1960, P. L. 86-645, 74 Stat. 480, 493 (1960), as amended, P. L. 88-293, 78 Stat. 171 (1964), certain easements, as hereinafter more fully described, in the following lands:

I. LANDS.

A. Project Areas.

3,765 acres, more or less, in Sections 29, 28, 27, 32, 33 and 34, T. 17 N., R. 6 E., N.M.P.M., and in Sections 5, 4, 8, 9, 10, 17, 16, 15, 20, 21, 22, 28, 27, 33 and 34, T. 16 N., R. 6 E., N.M.P.M., all within the Pueblo of Cochiti Grant, as more fully described in Exhibit A, attached to and hereby made a part of this EASEMENT GRANT AND AGREEMENT, and being those areas colored red and labeled "Project Area" on Exhibit B, a map prepared by the Department of the Army, United States Army Corps of Engineers, Office of the Albuquerque District Engineers, of the Cochiti Dam and Reservoir, attached to and hereby made a part of this EASEMENT GRANT AND AGREEMENT.

B. Public Use Areas.

304 acres, more or less, in Sections 5, 4 and 3, T. 16 N., R. 6 E., N.M.P.M., all within the Pueblo of Cochiti Grant, as more fully described in Exhibit A, and being those areas colored blue and labeled "Public Use Area" on Exhibit B.

II. EASEMENTS.

With the approval of INTERIOR, the PUEBLO grants to the ENGINEERS easements in perpetuity, subject to any existing easements, to construct, to operate and to maintain the Cochiti Dam and Reservoir Project, as shown on Exhibit B, including:

A. The right to enter upon the lands described in Exhibit A, with personnel and equipment engaged in pre-construction activities, construction work and subsequent operation, maintenance and periodic inspection of the project facilities, as shown on Exhibit B, including, but not limited to, the Dam Structure, Spillways, Operation Headquarters, Employee Residences and other Related Structures, and such additional facilities as the efficient operation and maintenance of the Project may require.

STATE OF NEW MEXICO } ss
COUNTY OF SANDOVAL }
This instrument was filed for record on

JAN 24 1966

2:01

MEAT "D"

B. The right, in perpetuity, to permanently, temporarily or intermittently overflow, flood and submerge land lying below an elevation of 5,469.5 feet above sea level within the Project Areas as may be required for the construction and maintenance of a permanent pool and for flood control purposes; and the right, in perpetuity, to clear and remove any brush, debris and natural obstructions which, in the opinion of the ENGINEERS, may be detrimental to the operation of the Project.

C. The right to clear, borrow, excavate and remove soil, dirt and other materials from, and deposit waste material on, lands within the Project Area; PROVIDED, HOWEVER, that the ENGINEERS will not engage in these activities outside the boundaries of the Project Areas without the prior approval of the PUEBLO and INTERIOR.

D. The right to construct, operate and maintain bridges, channels, dams, levees, drainage ditches, roads, pipelines, water wells, other public utilities, railroads, landing fields and related facilities in the Project Area; PROVIDED, HOWEVER, that where feasible in the opinion of the ENGINEERS, public utilities will be made available to use by the PUEBLO on a cost-reimbursable basis; and PROVIDED, HOWEVER, that nothing in this paragraph shall impair any water rights of the PUEBLO.

E. The right to open the water areas of the Project Areas and the Public Use Areas to public use generally for boating, swimming, fishing and other recreational purposes, and the right to provide and maintain ready access to and exit from such areas along the shores of the Project for public use, when such use is determined by the Secretary of the Army not to be contrary to the public interests, all under such rules and regulations as the Secretary of the Army may deem necessary.

F. The right to provide an access road to and through the project areas and the public use areas for general public use and for the operation and maintenance of the project as the Secretary of the Army of the United States deems appropriate in the public interests. This will include the relocation and reconstruction of U. S. Pueblos Road No. 90 and New Mexico State Highway No. 22. Consent is hereby granted to the Secretary of the Army to convey or assign to the State of New Mexico the right-of-way required for the relocation of State Highway No. 22. Road maintenance by the ENGINEERS on the west side of the Rio Grande will be restricted to those roads required to serve the Corps of Engineers' administration and maintenance buildings, aside from State Highway No. 22 and United Pueblos Road 90. The PUEBLO shall maintain or cause to be maintained, all other roads constructed by the ENGINEERS on PUEBLO lands, including those inside the Public Use Areas.

G. The right to construct within the Public Use Areas various public use facilities such as picnic tables, toilet facilities, boat ramps and similar facilities; PROVIDED, HOWEVER, that the ENGINEERS will permit the PUEBLO, under the supervision of INTERIOR, to operate and maintain said facilities under standards which will meet the responsibility of the ENGINEERS to provide recreational facilities of acceptable standards.

H. The right to deny access to the general public, or private organization or any person whatsoever during a national emergency declared by the President of the United States.

III. RETENTION OF RIGHTS BY PUEBLO.

The PUEBLO specifically retains rights and privileges as follows:

A. All rights, privileges and uses of lands within the Project Areas and the Public Use Areas which will not interfere with the easements heretofore granted to the ENGINEERS.

B. The right to charge the public reasonable admission fees to cover maintenance of public facilities, constructed by the ENGINEERS pursuant to Paragraph II. C. above; PROVIDED, HOWEVER, that the PUEBLO will operate, maintain and be responsible for the public use facilities under the supervision of INTERIOR and in accordance with rules and regulations promulgated by the ENGINEERS;

C. The exclusive right to lease and develop the Project Area above the upstream face of the Dam and the Public Use Areas for income-producing purposes, subject to the applicable laws and regulations of INTERIOR pertaining to the leasing of Indian lands, and subject to the PUEBLO maintaining standards of construction, maintenance and operation of facilities which will meet the responsibility of the ENGINEERS to provide recreational facilities of acceptable standards, PROVIDED, HOWEVER, that the PUEBLO will not construct or place structures of any type on lands within the Project Areas below the upstream face of the Dam, nor on lands within the Project Areas above the upstream face of the Dam below an elevation of 5,465.5 feet above sea level except with the prior approval of the ENGINEERS, and PROVIDED, HOWEVER, that any lease made pursuant to this paragraph shall be made expressly subject to the terms of this EASEMENT GRANT AND AGREEMENT.

D. The right to have the easements described in Paragraph II, above, terminated as to any lands within the Project Areas on which, in the opinion of the ENGINEERS, easements are unnecessary to the efficient operation and maintenance of the Project.

IV. ADDITIONAL PROVISIONS.

A. The ENGINEERS hereby agree that they will not unreasonably withhold their consent or approval where such consent or approval is necessary under the terms of this EASEMENT GRANT AND AGREEMENT.

B. The PUEBLO and INTERIOR hereby agree that they will not unreasonably withhold their consent or approval where such consent or approval is necessary under the terms of this EASEMENT GRANT AND AGREEMENT.

V. WATER RIGHTS.

Nothing in this EASEMENT GRANT AND AGREEMENT shall be considered as a conveyance, sale or other transfer of the water rights of the PUEBLO.

IN WITNESS WHEREOF, the PUEBLO has executed this EASEMENT GRANT AND AGREEMENT this 16th day of December, 1965.

PUEBLO OF COCHITI

By Fernando A. Cordova
Governor

Approved this 16th day of November, 1965.

Fred. Sol. Off.

U. S. DEPARTMENT OF THE INTERIOR

By Walter O. Olson
General Superintendent
United Pueblos Agency
Bureau of Indian Affairs
25 CFR 161.16

Accepted and agreed to this 3rd day of December 1965.

UNITED STATES OF AMERICA

By Harold W. Newman
District Engineer
U. S. Army Engineer District
Albuquerque

ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) SS
COUNTY OF Bernalillo

Before me, Sam Dazzo, a Notary Public in and for said County and State, on this 16th day of November, 1965, personally appeared Fernando A. Cordero to me known to be the identical person who subscribed his name to the foregoing instrument and acknowledged to me that he executed the same as his free and voluntary act and deed for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

Sam Dazzo
Notary Public

(SEAL)

My Commission Expires:
1-9-1966

EXHIBIT A

That portion of the Pueblo de Cochiti Grant, Sandoval County, State of New Mexico, more particularly described as follows:

PARCEL NO. 1 - PROJECT AREA From the southeast corner of Fractional Section 22, Township 16 North, Range 6 East, New Mexico Principal Meridian, north along the boundary of said section, a distance of 660 feet to the point of beginning; thence west, 512.82 feet; thence north 660 feet; thence west 660 feet; thence north 660 feet; thence west 660 feet; thence north 660 feet; thence west 660 feet; thence north 660 feet; thence west 660 feet; thence north 660 feet; thence west 3,960 feet; thence north 1,320 feet; thence east 1,980 feet; thence north 660 feet; thence west 660 feet; thence north 990 feet; thence west 330 feet; thence north 330 feet; thence west 2,970 feet; thence north 1,320 feet; thence east 660 feet; thence north 330 feet; thence east 660 feet; thence north 990 feet; thence west 660 feet; thence north 1,320 feet; thence west 660 feet; thence north 1,320 feet; thence west 660 feet; thence north along the east line of the $W\frac{1}{2}W\frac{1}{2}$ of Section 8, Township 16 North, Range 6 East, N.M.P.M., to a point on the north line of said Section 8; thence north 660 feet; thence west 330 feet; thence north 330 feet; thence east along a line parallel to and 990 feet north of the north boundary of said Section 8 to the intersection of said line with a point at elevation 5465.5 in the $SE\frac{1}{4}$ Section 5, Township 16 North, Range 6 East, N.M.P.M., thence northerly along a meandering line at elevation 5465.5 through Sections 4 and 5, Township 16 North, Range 6 East and Sections 28, 29, 32 and 33, Township 17 North, Range 6 East, N.M.P.M., to the intersection of said meandering line with the north boundary of Pueblo De Cochiti Grant; thence east along the north boundary of said Grant to the intersection of said north boundary with a meandering line at elevation 5465.5; thence easterly along said meandering line through portions of Sections 27 and 28, Township 17 North, Range 6 East, N.M.P.M., to the intersection of said line with the east boundary of said Grant; thence south along the east boundary of said Grant to the intersection of said east boundary with a meandering line at elevation 5465.5; thence southerly along said meandering line through Sections 33 and 34, Township 17 North, Range 6 East, and Sections 4 and 9, Township 16 North, Range 6 East, to the intersection of said line with the East boundary of the Pueblo De Cochiti Grant at a point near the northeast corner of Section 10, Township 16 North,

Range 6 East, N.M.P.M.; thence south along the east boundary of said Grant to the point of beginning and containing 3,439.10 acres, more or less.

PARCEL NO. 2 - PROJECT AREA Beginning at the southeast corner of the Pueblo de Cochiti Grant, Sandoval County, State of New Mexico; thence west along the south boundary of said Grant, a distance of 1,802.46 feet to a point on the south line of Section 33, Township 16 North, Range 6 East, N.M.P.M.; thence north to a point on the north line of said section; thence west 330 feet; thence north 1,980 feet; thence east 330 feet; thence north 1,320 feet; thence east 1,849.32 feet to a point on the east boundary of the Pueblo de Cochiti Grant, also being the east boundary of Fractional Section 27, Township 16 North, Range 6 East, N.M.P.M.; thence south along the east boundary of the Pueblo de Cochiti Grant and the east line of Fractional Sections 27 and 34 to the southeast corner of said Section 34 and the point of beginning, containing 325.90 acres, more or less.

PARCEL No. 1 - PUBLIC USE All those portions of $E\frac{1}{2}E\frac{1}{2}$, the $NW\frac{1}{4}SE\frac{1}{4}$, $N\frac{1}{2}N\frac{1}{2}SW\frac{1}{4}SE\frac{1}{4}$, $NE\frac{1}{4}SW\frac{1}{4}$, $E\frac{1}{2}E\frac{1}{2}NW\frac{1}{4}SW\frac{1}{4}$, $N\frac{1}{2}N\frac{1}{2}SE\frac{1}{4}SW\frac{1}{4}$ and the $NE\frac{1}{4}NE\frac{1}{4}SW\frac{1}{4}SW\frac{1}{4}$ of Section 5; and the $SW\frac{1}{4}NW\frac{1}{4}$ Section 4, Township 16 North, Range 6 East, N.M.P.M., lying above elevation 5465.5 containing 160 acres, more or less.

PARCEL NO. 2 - PUBLIC USE All those portions of the $S\frac{1}{2}$ of Section 3, the $SE\frac{1}{4}$, $SW\frac{1}{4}NE\frac{1}{4}$ and $E\frac{1}{2}W\frac{1}{2}SE\frac{1}{4}NW\frac{1}{4}$ Section 4, $NE\frac{1}{4}NE\frac{1}{4}$ Section 9 and $N\frac{1}{2}N\frac{1}{2}$ Section 10, Township 16 North, Range 6 East, N.M.P.M., lying above elevation 5465.5, containing 144 acres, more or less.

Together with a temporary right-of-way 60 feet in width, for relocation of U. P. Road No. 90, extending into the $NW\frac{1}{4}$ Section 5, Township 16 North, Range 6 East, N.M.P.M., and lying between the north boundary of Parcel No. 1, Public Use Area, above-described, and the intersection of said right-of-way with the existing U. S. Pueblos Road No. 90.

STATEMENT

OF

MAJOR GENERAL H. J. HATCH

DIRECTOR OF CIVIL WORKS

ARMY CORPS OF ENGINEERS

BEFORE THE

SENATE SELECT COMMITTEE ON INDIAN AFFAIRS

MARCH 15, 1988

Mr. Chairman and Members of the Committee:

I am Major General Henry J. Hatch, Director of Civil Works for the U.S. Army Corps of Engineers. With me today is Mr. John Cunico, Chief of the Design Branch of the Albuquerque District, Corps of Engineers.

We appreciate this opportunity to appear before you to discuss the high groundwater problem on Pueblo de Cochiti lands below the Cochiti Dam and Corps efforts in reaching a solution to this problem that is agreeable to both the Cochiti Pueblo and the Federal Government.

Cochiti Dam and Lake is located in north-central New Mexico, approximately 50 miles north of Albuquerque. The Flood Control Act of 1960, P.L. 86-640, authorized the construction of Cochiti Dam for flood and sediment control. A permanent recreation pool was authorized by P.L. 88-293 on 26 March 1964. The project consists of an earthfill dam approximately 5.4 miles long with a maximum height of 251 feet above the streambed. The dam extends across the Rio Grande, the Canada de Cochiti, and the Santa Fe River and is founded primarily on alluvial material with rock outcrops.

The dam is located on property owned by the Pueblo de Cochiti with an easement to the United States Government for purposes of the project. The Pueblo itself is located on the west side of the Rio Grande approximately 1 mile downstream of the dam. Between 500 and 800 acres of Pueblo land is irrigable on both sides of the river.
Storage of water in the permanent recreation pool was initiated in 1976. Shortly thereafter, a series of shallow ponds and zones of saturated soil appeared downstream of the dam and began to expand. The District, as well as other organizations, conducted several investigations which determined

that the primary cause of the wetfield problem on Cochiti lands immediately below the dam is an increase in the groundwater table that has developed from storage of water in the reservoir. This storage resulted in extensive seepage from the reservoir through the unconsolidated sands and gravels below the dam foundation. The severity and the areal extent of the seepage varies depending on the amount and duration of storage in Cochiti Lake.

We have actively pursued a solution to the Cochiti problem since the seepage first appeared; first by undertaking studies to determine the source of the problem and secondly by attempting to find an existing authority to correct the problem. Numerous meetings between the Cochitis, political leaders, and the Corps of Engineers failed to provide an avenue to solve the problem. Because no resolution could be reached, the Cochiti Pueblo filed a law suit in November 1985 related to the increased groundwater table. Since then the Cochiti Pueblo has expressed an interest in trying to negotiate an out-of-court settlement and this possibility has been discussed with the Department of Justice.

In an effort to provide authority to solve the problem, the Congress, in the Continuing Appropriations for FY 1988, directed the Secretary of the Army to expend funds not to exceed $50,000 to plan and not to exceed $700,000 to design and engineer appropriate works to alleviate high ground water problems on agricultural lands of the Cochiti Pueblo directly downstream from Cochiti Dam; provided no such funds shall be expended for design and engineering until the Secretary and the Tribal Council of the Pueblo have agreed in writing to a plan of design that, in the judgment of both parties, will resolve the problems related to such high ground water. It further provided that the Secretary and the Tribal Council shall continue to negotiate and if they agree, the Secretary shall submit

to Congress a proposed settlement that would be in lieu of, or addition to, any construction of works for the purpose of alleviating the high ground water problems. It is our understanding that this legislation contemplates further congressional action to fully and finally resolve the high ground water problems at Cochiti Pueblo following the completion of the negotiation process and the design effort.

A Reconnaissance Report addressing the high groundwater problem on Cochiti Pueblo land was prepared in response to Senate Report 99-441 which accompanied the FY 87 Appropriations bill. This report will be used as the basis for discussion with the Pueblo.

The following alternatives were considered in the Reconnaissance Report to resolve the seepage problem on Pueblo de Cochiti lands.

Non-structural Measures:

a. No Action.
b. Purchase affected land.
c. Acquire flowage easements for affected property.
d. Operation changes for Cochiti Dam.

Structural Measures:

e. Relocation of farmlands to higher ground on Cochiti land.
f. Raise existing farmlands.
g. Sealing the reservoir.
h. Grouting of the embankment foundation.
i. Installation of cutoff trenches in the embankment foundation.
j. Sealing or lining of the irrigation canals.

k. Installation of wells.
l. Construction of drainage ditches in the affected areas.
m. Buried drainage collector systems in the affected area.
n. Combinations of the above structural measures.

Non-structural solutions while providing compensation or reducing the seepage flows would not eliminate the high groundwater problem. On a purely economic basis, the structural alternative that would provide the required relief at the least cost is installation of a system of open drainage ditches. This alternative has an estimated total cost of $3,438,000. However, some land would be lost through the construction of the ditches and the Pueblo has expressed concern that the open ditches would present a hazard to livestock and children. The next least costly structural alternative is the buried collector system at a total cost of $3,970,000. Installation of either alternative is not complex, and operation and maintenance cost would be low.

The Department of the Army is most interested in reaching a solution to the seepage problem that is agreeable to both the Pueblo and the Federal Government. We recognize that tradition and cultural and religious values are important considerations to the Cochiti Tribe and we are willing to discuss these values during our negotiations. In an effort to reach an agreeable solution, we have begun complying with the provisions that Congress directed us to undertake in the FY 1988 Continuing Appropriations. On March 7, 1988, the Albuquerque District met with members of the Cochiti Pueblo to discuss possible solutions to the seepage problem. Both parties outlined negotiation parameters that could ultimately result in the required agreement. A subsequent meeting has been scheduled for March 22, 1988, to further resolve differences in data and to further define acceptable solutions.
Mr. Chairman, this concludes my remarks. I will be happy to entertain any questions.

Reconnaissance Report

High Groundwater Problem on Pueblo de Cochiti Lands Below Cochiti Dam, NM

US Army Corps of Engineers
Albuquerque District

November 1987

RECONNAISSANCE REPORT
HIGH GROUNDWATER PROBLEM
ON PUEBLO de COCHITI LANDS
BELOW COCHITI DAM, NM

Table of Contents

Paragraph No.		Page
I.	Introduction	1
II.	Purpose of this Document	2
2-03.	The Study Area	2
III.	Background	3
3-01.	Authorities	3
3-02.	Project Description	3
3-06.	Project Outputs	4
3-07.	Project Operations	4
3-09.	Prior Reports and Correspondence	5
IV.	Problem Identification	8
4-02.	Existing Foundation Conditions, Rio Grande	8
4-06.	Existing Foundation Conditions, Canada de Cochiti	8
4-08.	Existing Foundation Conditions, Santa Fe River	9
4-09.	Seepage Summary	9
4-11.	Problem Identification	10
V.	Alternatives Evaluation	11
5-01.	General	11
5-02.	No Action	11
5-03.	Fee Purchase of Affected Land	11
5-05.	Acquisition of Flowage Easement for Affected Area	11
5-07.	Operational Changes for Cochiti Dam	12
5-11.	Relocation of Farmland	13
5-15.	Raising Farmlands	14
5-18.	Sealing the Reservoir	14
5-20.	Grouting of the Embankment Foundation	14
5-27.	Installation of Various Types of Cutoff Trenches in the Embankment Foundation	15
5-32.	Sealing or Lining the Canals	16
5-33.	Installation of Wells	16
5-37.	Installation of Drainage Ditches in the Affected Area	17
5-40.	Buried Drainage Collector Systems in the Affected Area	18
5-45.	Combination of the above Alternatives	18
5-43.	Reclamation	19
VI.	Environmental Considerations	25
6-01.	General	25
6-02.	Status of Compliance with Applicable Laws and Regulations	25
6-03.	Fish, Wildlife and Habitat Resources	25
6-04.	Endangered species	25
6-05.	Cultural Resources	25
6-07.	Social and Economic Implications	26

Table of Contents (cont.)

Paragraph No. Page

VII. Conclusions 27

List of Tables

TABLE 5-1 Cost Estimate for Relocation of Farmlands 20
TABLE 5-2 Estimated Costs to Raise 487 Acres of Farmlands 21
TABLE 5-3 Cost Estimate for Cement Grouting of Embankment Foundation. . . 21
TABLE 5-4 Cost Estimate for Installation of Cutoff Trench 22
TABLE 5-5 Cost Estimate for Installation of Shallow Well System 22
TABLE 5-6 Cost Estimate for Installation of Open Ditch Drainage System. . 23
TABLE 5-7 Cost Estimate for Installation of Buried Collector Drainage System. 23
TABLE 5-8 Cost Estimate for Combination of Drainage Ditches and Buried Collector System. 24
TABLE 7-1 Summary of Alternatives 28

List of Plates

1. General Map
2. Profile along Dam Axis Sta 0+00 to Sta 90+00
3. Profile along Dam Axis Sta 90+00 to Sta 189+00
4. Profile along Dam Axis Sta 189+00 to Sta 291+00
5. Water Table Contour Map - Predam
6. Water Table Contour Map - September 1981
7. Water Table Contour Map - June/July 1986
8. End of the Month Storage Elevations, Cochiti Lake

RECONNAISSANCE REPORT
HIGH GROUNDWATER PROBLEM
ON PUEBLO de COCHITI LANDS
BELOW COCHITI DAM, NM

I. Introduction

1-01. Cochiti Dam and Lake is located on the Rio Grande 50 miles north of Albuquerque, New Mexico. Cochiti Dam is an earthfill structure located near the confluence of the Rio Grande, the Santa Fe River and a small tributary, the Canada de Cochiti. The embankment was completed in 1975. Storage of Rio Grande waters in the permanent pool was initiated in 1975. A series of shallow ponds and zones of saturated soil appeared downstream of the dam on the Pueblo de Cochiti lands shortly after the project became operational.

1-02. Subsequently, the Albuquerque District, as well as other organizations conducted several investigations that have determined that the wet fields on Pueblo de Cochiti lands immediately downstream of the dam are associated with foundation seepage from Cochiti Dam.

II. Purpose of this Document

2-01. The purpose of this Reconnaissance Report is to identify the causes of high groundwater problems on the Pueblo de Cochiti lands and formulate structural and non-structural solutions to resolve these problems. Each alternative was evaluated based on performance, feasibility of construction, and cost. The Reconnaissance Report has been prepared in partial response to Senate Report 99-441 which accompanied the Fiscal Year 1987 Appropriation Bill which required the Corps of Engineers to "implement studies concerning the seepage from Cochiti Dam onto lands of the Cochiti Indian Pueblo with a view to specifically identify the problem and formulate an adequate solution." This report does not address high groundwater problems in other areas downstream of the dam. Additional studies are currently underway to collect information and address the high groundwater problems in other areas.

2-02. Although environmental considerations will be discussed, this report is not intended to exhibit or initiate compliance with the various environmental requirements. Compliance with these requirements will be accomplished as part of any future investigations.

2-03. The Study Area. The study area for this report is limited to the Cochiti Indian Pueblo farmlands located downstream of Cochiti Lake between State Road 22 and Peralta Canyon on the west side and the Santa Fe River on the east side of the Rio Grande. There have been differing figures reported as to the number of acres affected by the seepage problem. These figures range between 500 and 800 acres. In June 1987, a gross real estate appraisal of the above area was conducted by the Albuquerque District. This appraisal was accomplished for approximately 737.75 acres, of which 487.75 acres was appraised as productive farm land and approximately 250 acres as bosque type land. For this report, it was estimated that the amount of affected farmland is 487.75 acres.

2-04. The farm lands are located on both sides of the Rio Grande (see Plate 1). The farm lands are irrigated by two canals, the Sile Canal on the west side and the Cochiti Main Canal on the east side. Primary crops are alfalfa, corn and grass. About 328.35 acres of farm land is on the west side of the river adjacent to the Cochiti Pueblo and approximately 159.4 acres of farm land is on the east side of the Rio Grande. These farm lands are divided into roughly 10 acre tracts and bounded by roads and secondary ditch systems.

III. Background

3-01. Authorities. Cochiti Lake was authorized for flood and sediment control by the Flood Control Act of 1960 (P.L. 86-645). Paragraph 1-02(c) of the P. L. 86-645 allowed storage in the Middle Rio Grande Flood Control projects, including Cochiti Lake, for permanent pools for recreation and fish and wildlife: "provided, that the water required to fill and maintain such a pool is obtained from sources entirely outside the drainage basin of the Rio Grande." P.L. 88-293, 88th Congress, approved 26 March 1964, authorized the Secretary of the Interior to make water available for a permanent pool for fish and wildlife and recreation purposes at Cochiti Lake from the San Juan-Chama unit of the Colorado River storage project. The Act authorized approximately 50,000 acre feet of the water for the initial filling of the permanent pool of 1,200 surface acres in Cochiti Lake and sufficient water annually to offset evaporation losses from this pool. Cochiti Dam and Lake provide recreational opportunities for much of north-central New Mexico. Primary users are from the metropolitan areas of Albuquerque and Santa Fe, New Mexico.

3-02. Project Description. Construction of Cochiti Dam was initiated on February 11, 1965 and completed, except for construction of certain recreation facilities, in August, 1975. Cochiti Lake is located in north-central New Mexico, in Sandoval County, approximately 50 miles north of Albuquerque, New Mexico (see Plate 1). The project includes two recreation areas. The Tetilla Peak and Cochiti Recreation Areas are situated on the east and west sides of the lake, respectively. Both areas are provided with boat launching ramps, service roads, camping, water, sewer and electrical systems, comfort stations, and other public use facilities. A third recreation area, White Rock, was planned for development by the U.S. Forest Service; however, this development has not been undertaken.

3-03. The project consists of an earthfill dam approximately 5.4 miles long with a maximum height of 251 feet above the streambed. The dam extends in a generally east-west line across the Rio Grande to a point 2 miles east of the river and then southward across the Canada de Cochiti and the Santa Fe River. The dam is founded primarily on alluvium and bedrock material. An uncontrolled spillway is located at the southernmost end of the embankment on the south side of the Santa Fe River. The total construction cost of the project through Fiscal Year 1985 is $97,085,000. Total operation and maintenance costs for the project through Fiscal Year 1986 have been $9,700,000.

3-04. The outlet works, located in the west abutment on the Rio Grande, consist of a 3 barrel gated conduit ending in a two-level stilling basin with an excavated channel to the Rio Grande. No outlets were provided at either the Canada de Cochiti or the Santa Fe River. An excavated conveyance channel allows water ponded on the Santa Fe River and Canada de Cochiti arms of the reservoir to flow to the main reservoir on the Rio Grande. Operational releases for flood control and to pass river inflows are made through the outlet works.

3-05. The embankment of Cochiti Dam was designed for storage of a permanent pool in addition to carry-over flood pools. Cochiti Dam is a rolled earth embankment consisting of a central impervious core flanked by shells of

increasing permeability toward the exterior slopes. Downstream zoning includes inclined and horizontal drains. Foundation seepage control was addressed using partial cutoff trenches, grout curtains, downstream drainage blankets, and downstream relief wells. These seepage measures were taken to insure the stability and safety of the structure.

3-06. Project Outputs. The project is one of several dams within the Rio Grande watershed that are operated as an integral system to regulate flood flows and sediment depositions. During the year 1986 alone, the estimated flood and sediment damages prevented by Cochiti Dam were $50,994,900 and $196,700, respectively. The total flood and sediment damages through 1986 that have been prevented by this project since construction completion are estimated to be $194,507,900. Cochiti Lake provides water recreation opportunities for the north-central portion of the state. Project visitation has continually increased annually since completion of construction in 1975. In 1986, 1,369,659 visitor days were reported for the project. This figure represents a 23 percent increase in visitation over the figure reported in 1985 (1,105,400). Average annual project benefits attributable to the recreation use for 1986 are estimated to be $5,040,300.

3-07. Project Operations. The Cochiti Dam and Lake is operated by the U.S. Army Corps of Engineers for flood and sediment control of the Rio Grande and for recreation and fish and wildlife enhancement. Cochiti Dam controls 11,695 square miles of watershed. Cochiti Dam is the most important and the last flood control structure on the mainstem of the Rio Grande above Caballo Reservoir in southern New Mexico. The project has a total capacity of 724,100 acre feet at maximum pool elevation and 602,000 acre feet at the top of the flood control pool. Storage within the reservoir is allocated between sediment control, with a capacity of 105,000 acre feet, and flood control having a capacity of 442,000 acre feet. A permanent recreation pool providing 1,200 surface acres is maintained within the total reservoir storage. The current storage required to maintain the recreation pool is approximately 50,000 acre feet.

3-08. Flood and sediment control operations for Cochiti Dam are accomplished in accordance with procedures in P.L. 86-645. These procedures are summarized as follows:

a. the outflow from Cochiti Reservoir during each spring flood and thereafter will be at the maximum non-damaging rate of flow that can be carried at the time in the channel of the Rio Grande through the middle valley: provided, that whenever during the months of July, August, September, and October, there is more than 212,000 acre feet available within the reservoir for flood regulation and the inflow to the reservoir (exclusive of releases from upstream flood control storage) is less than 1,500 cubic feet per second (cfs), no water will be withdrawn from storage within the reservoir and the releases from upstream flood control storage will be retained in the reservoir.

b. storage of water in and the release of water from the reservoir will accomplished for flood and sediment control: provided, that the Corps of Engineers will endeavor to avoid encroachment on the upper 212,000 acre feet of capacity in Cochiti Reservoir, and that all reservoirs in the Middle Rio Grande project will be evacuated on or before March 31 of each

year.

c. all reservoirs of the Middle Rio Grande project (including Cochiti) will be operated at all times in the manner described in conformity with the Rio Grande Compact, and no departure from the operation schedule set forth in the Act will be made except with the advice and consent of the Rio Grande Compact Commission, provided, that whenever the Corps of Engineers determines that an emergency exists affecting the safety of major structures or endangering life and shall advise the Rio Grande Compact Commission in writing these rules of operation may be suspended during the period of and to the extent required by the emergency.

In accordance with the above criteria, flood waters are stored and regulated releases are made from the reservoir during the period from April 1 through June 30. If, after this period, there is at least 212,000 acre feet of storage available within the reservoir and river flows are less than 1,500 cfs, flood water will be carried over till November 1 when these waters will be evacuated such that on March 31, all flood control storage (442,000 acre feet) is available within the reservoir. Any departure from the criteria set forth in P.L. 86-645 is prohibited. Modification to the operation schedules can be made with the advice and consent of the Rio Grande Compact Commission.

3-09. Prior Reports and Correspondence. Subsequent to the initial storage of the recreation pool in December 1975, the Cochiti project staff reported standing water in a field on the Pueblo de Cochiti land approximately 1,700 feet downstream of the dam. In the following spring and summer of 1976, the Albuquerque District was contacted by numerous individuals stating their concern that the water table on land downstream of the dam was rising. In August 1976, several observation wells were installed downstream of the dam to monitor the seepage flows beneath the dam. In 1977, a subdrain system was installed immediately downstream of the dam. The system was installed to intercept seepage flows prior to entering the Cochiti Pueblo lands and to provide the District with additional information on the amount of seepage occurring in the foundation. This system consisted of an open ditch paralleling State Road 22 between Sile Canal and the Rio Grande. In October 1977, responding to concerns from the Pueblo that the open ditch proposed a health and safety hazard the District replaced the open ditch with a buried perforated pipe. In July 1979, the Albuquerque District submitted Design Memorandum No. 16, Detail Design Cochiti Farmland Subdrain System which recommended construction of an underground subdrain system in a 17 acre field immediately downstream of State Road 22. This system was installed in 1980. Some deficiencies have been noted in this system since construction. These problems result from lack of maintenance work required to remove root growth and repair what appears to be breaks in the lines where the surrounding material has entered the pipe causing a blockage of the drainage flows. One area, near manhole no. 4, has developed a saturated condition. Although not verified, it appears that this problem is caused by either a collapsed or clogged portion of pipe, or a grade reversal that is preventing this portion of the system from operating as originally designed. These problems have not been corrected due to the disagreement between the Corps of Engineers and the Cochiti Pueblo as to maintenance responsibility.

3-10. Following a public hearing in April 1980, the Albuquerque District contracted with Geohydrology Associates Inc., a local groundwater consultant,

to determine the source or sources of the seepage problem. The results of their study was submitted to the Albuquerque District in October 1982 and titled Investigation of Water Table in vicinity of Cochiti Dam, Sandoval County, New Mexico. The report concluded that the rise in the groundwater table immediately downstream of the dam was attributed to seepage through the foundation of the dam. High Groundwater problems further downstream of the dam are also a result of foundation seepage from the dam and to increasing degrees from seepage of the irrigation canals that deliver water to the farmland downstream. The canal seepage affects the Pueblo de Cochiti lands but to a lesser extent when compared to the foundation seepage flows. Canal seepage is believed to be attributed to a decreased silt load of waters conveyed in the existing canals since construction of the dam. Another factor influencing the rise of the groundwater table downstream of the dam is an increase in diversions from the canal over those that occurred prior to construction of the dam. Diversions from the Cochiti and Sile canals are approximately twice what they were prior to construction of the dam.

3-11. In June 1984, a separate study on the groundwater problem at Pena Blanca was completed by two consultants, CH2M Hill and Resource Technology, Inc., for the Middle Rio Grande Conservancy District (MRGCD). The report, titled Evaluation and Alleviation of High Groundwater Problems at Pena Blanca, New Mexico, postulated that the problem at Pena Blanca was due to storage of a small pool in the Santa Fe River portion of Cochiti Reservoir, seepage from the Cochiti main canal, poor soil drainage in the affected areas and possibly to irrigation practices in the area. The Albuquerque District felt that more information was needed to verify or refute the postulation of the Santa Fe River as a source of the high groundwater in this area and proceeded to initiate a plan to monitor groundwater levels in the Santa Fe River portion of the dam.

3-12. In November 1984, actions were initiated by the Albuquerque District to prepare a report discussing the seepage related problems below Cochiti Dam. In April 1985, the Albuquerque District submitted a letter report for review. The letter report, titled Reconnaissance Report on Seepage Deficiency at Cochiti Lake, NM, considered several alternatives for remedial action. The report recommended construction of a subdrain system on Pueblo de Cochiti land and approval of the Reconnaissance Report as a basis to prepare detailed designs. The report further recommended installation of observation wells and a detailed groundwater evaluation of the area below the Santa Fe River portion of the reservoir to address the hypothesis of the groundwater report prepared for the MRGCD.

3-13. In follow-on correspondence, the Albuquerque District was instructed to suspend any further effort associated with design of a structural solution to the seepage problem on Cochiti lands. This action was taken pending resolution of a law suit filed by the Pueblo de Cochiti. However, the Albuquerque District was instructed to proceed with installation of observation wells and further evaluations to describe the seepage conditions within the Santa Fe River portion of the reservoir. In Fiscal Year 1987, the Albuquerque District completed a memorandum of understanding and scope of work for the United States Geological Survey to develop a monitoring plan for the Santa Fe River. The schedule established in the scope of work calls for completion of well installation in Fiscal Year 1988 and a report of findings in Fiscal Year 1989.

3-14. In 1986, the Albuquerque District was directed to prepare additional reconnaissance level studies to resolve the seepage problem on the Pueblo de Cochiti land.

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IV. Problem Identification

4-01. To fully understand the groundwater problem at Cochiti Dam some general discussion of the existing foundation conditions must be made. The following paragraphs discuss the existing conditions. Water surface elevations mentioned in the following paragraphs are based on observations made on December 23, 1986. Each section is presented graphically in plates 2 through 4.

4-02. Existing Foundation Conditions, Rio Grande. Foundation conditions from the west end of Cochiti Dam Station 0+00A, to the outlet works, Station 90+00A, the portion directly above the affected wet fields, vary from sandstone and basalt to unconsolidated alluvial deposits which are in excess of 250 feet in depth (see plate 2). From Station 0+00A to station 25+00A foundation conditions consist of unconsolidated alluvial deposits underlain by bedrock at depths varying from 150 to greater than 200 feet. Drilling accomplished during design of the dam did not reach this depth and bedrock is inferred from seismic data. Ground elevations vary from elevation 5360 to elevation 5479. Protection of the structure from foundation seepage is provided by partial cutoff trenches that have depths of 10 feet from station 2+07A to station 13+50A, 20 feet from station 13+50A to station 18+50A, and 30 feet from station 18+50A to station 25+00A.

4-03. The section of the dam from station 25+00A to approximately 55+00A is founded on deep alluvial deposits in excess of 200 feet. Bedrock elevations between stations 25+00A and 55+00A determined from seismic data range from 5100 to 5125. Ground elevations in this reach vary from 5320 to 5360 and the partial cutoff trench varies from elevation 5290 to 5330. No additional foundation cutoff treatment was provided in this area.

4-04. From station 55+00A to station 90+00A the alluvial foundation materials which ranged in depth up to 60 feet, were excavated and the central impervious core of the dam was founded on bedrock. Bedrock is primarily sandstone with interbedded basalt. A triple line grout curtain was provided into the bedrock.

4-05. Relief wells at the downstream toe of the embankment are provided from station 14+00A to station 56+00A. Water levels in the relief wells are monitored and water surface elevations are on the order of elevation 5300 ± 10 feet from station 14+00A to station 44+00A. From station 44+00A to station 56+00A, the water levels lower gradually to elevation 5261. Water surface elevations for this reach are shown on plate 2.

4-06. Existing Foundation Conditions, Canada de Cochiti. Foundation conditions in the Canada de Cochiti reach consist of unconsolidated alluvium ranging in depth from 90 to 150 feet and underlain by bedrock (see plate 3). Ground elevations vary from elevation 5410 at the east end to elevation 5320 at the invert of the Canada de Cochiti to elevation 5375 at station 97+00A. From station 90+00A to station 97+00A the dam is founded on bedrock. Between station 97+00A to station 120+58A protection of the structure is provided by a partial cutoff trench extending to elevation 5320. A partial cutoff trench was extended across the Canada de Cochiti between stations 120+58A and 130+60A. The partial cutoff trench was extended to elevation 5280 at station 130+60A and to elevation 5370 at station 134+22A. The thickness of overburden

below the partial cutoff trench varies from less than 40 feet to in excess of 120 feet throughout this reach.

4-07. Downstream relief wells have been provided between station 97+00A and station 136+00A. Water surface elevations are approximately elevation 5335, the existing pool elevation at the time of the observation, from station 97+00A to station 119+00A, the west abutment of the Canada de Cochiti. Groundwater surface elevations drop to elevation 5237 at the invert of the Canada de Cochiti; rise to elevation 5330 at the east abutment and continue to rise to elevation 5350, possibly a perched water table, at station 136+00A. The drop in water elevations in the Canada de Cochiti appears to reflect the relief provided by a pervious blanket.

4-08. Existing Foundation Conditions, Santa Fe River. The dam is founded on basalt in the Santa Fe River reach (see plate 4). After excavation of the overburden, a two foot thickness of select granular material was placed between the impervious core and the basalt to act as a filter and prevent migration of the impervious core materials into the basalt. There are no relief wells in the reach of the Santa Fe River; therefore, water surface elevations for this reach are not provided. However, seepage is emerging immediately downstream of the toe of the dam in visible and measurable quantities.

4-09. Seepage Summary. Investigations conducted for the Albuquerque District in 1982 indicated the primary cause of the wet field problem on Cochiti lands immediately below the dam is a groundwater mound that extends downstream of the dam. Plates 5, 6, and 7 present for comparison the groundwater contours for preproject conditions, post project conditions (1982), and post project conditions (1986), respectively. These plates present the groundwater contour maps as developed in the 1982 report and updated in 1986 by Geohydrology Associates, Inc. The groundwater mound initially developed from storage of water in the recreation pool and is a result of seepage flows through the unconsolidated sands and gravels of the dam foundation. The 1982 report identified the area affected by the groundwater mound about a line extending through wells numbered 8-1 and 8-2 on the west side to about well number 4-2 on the east side of the river (see plate 6). The cause of the seepage problems between wells numbered 8-1 and 8-2 to about well number 9-2 on the west side and from well 4-3 to about well number 4-4 on the east side is a combination of the groundwater mound and canal seepage.

4-10. During the 1982 report, projections of the extent of the high groundwater table for various reservoir elevations were made using a digital model. Recent high pool elevations that have resulted from storage of flood waters have verified the conclusions made during the 1982 report. Comparison of plates 6 and 7 shows the amount of change that has occurred in the water table between September 1981 and June/July 1986. The zero-line, showing no change, extends from near Cochiti Pueblo on the southwest to the toe of the dam along the river channel. The zero-line then roughly follows the Cochiti Main Canal to the channel of the Santa fe River. All of the area north and east of the zero-line has shown a rise in water levels since September 1981. It should be noted that in September 1981 the pool level in the lake was approximately 5,321 feet NGVD as compared with the elevation of 5,417 feet in July 1986. This 96 foot change in pool level was represented by a maximum rise of about 35 feet in observation wells located near the dam. Most of the

agricultural lands north of Cochiti Pueblo and west of the river experienced a groundwater rise of 5 feet or less. At the land surface this would have been most apparent in the lands between the Sile Main Canal and the Rio Grande. Although a larger area east of the river was affected, the water table in this area is more deeply buried so that the changes would have been less obvious at the land surface.

4-11. Problem Identification. The previous discussion has identified the sources and physical conditions that have caused the high groundwater problems on the Pueblo de Cochiti lands. Because of the rise in the groundwater table, the Pueblo farm lands immediately below the dam have been affected. Some of the land cannot be farmed because of standing water in the fields, while other areas cannot be farmed because there is insufficient depth of freely draining soil due to the high groundwater table. Where the groundwater is near the land surface, capillary action of the soil and evaporation of the groundwater as it reaches the surface has caused concentration of mineral salts in the soil.

4-12. These problems have rendered the affected lands unproductive for farming the types of crops historically raised on the land. The high groundwater problems also has social and cultural impacts to the Cochiti Pueblo. The farming of the Pueblo land is culturally significant to the Tribe because of the opportunity for members of the Pueblo to raise their own food in family gardens, as well as, raising ceremonial crops. Cultural, traditional and religious values affect the Cochiti Tribal perceptions of the affected farm lands. The latter values are intangible but must be acknowledged that these values are of significant tribal importance.

4-13. Formulation of the alternatives has been accomplished to identify a wide range of possible solutions to resolve the high groundwater problems on the Pueblo de Cochiti lands. Each alternative was evaluated based on performance, feasibility of construction, and cost. Selection of an acceptable solution is beyond the scope of this report.

V. Alternatives Evaluation

5-01. General. The following alternatives were considered to resolve the seepage problem on Pueblo de Cochiti lands.

Non-structural Measures:

a. No Action.
b. Purchase affected land.
c. Acquire flowage easement for affected property.
d. Operational changes for Cochiti Dam.

Structural Measures:

e. Relocation of Farmlands to higher ground on Cochiti land.
f. Raise Farmlands.
g. Sealing the reservoir.
h. Grouting of the embankment foundation.
i. Installation of cutoff trenches in the embankment foundation.
j. Sealing or lining of the irrigation canals.
k. Installation of wells.
l. Construction of drainage ditches in the affected areas.
m. Buried drainage collector systems in the affected area.
n. Combinations of the above structural measures.

Each of the above alternatives are discussed in the following paragraphs. Where applicable, alternatives were evaluated using a 100 year economic life and a discount rate of 8 7/8 percent.

5-02. No Action. This alternative will not provide relief of the high ground water problem below Cochiti dam. Seepage will continue and the affected farm land will, at least in part, remain unproductive perpetuating the conflict between the Pueblo and the Federal government.

5-03. Fee Purchase of Affected Land. This alternative considered acquisition of complete and full title of the land. The market value of the existing farm lands has been estimated to be $2,626,000. This estimate was based on 487.75 acres of productive farm land and approximately 250 acres of existing bosque land.

5-04. The Pueblo owns the land of the Cochiti Pueblo in fee subject to restrictions against alienation imposed by the Pueblo Lands Act of 1924 which states in effect that the land cannot be sold. Therefore, purchase of the affected property would be in violation of existing Federal law. The consideration of fee purchase of the affected lands is a viable alternative only if special Congressional legislation is enacted authorizing the purchase. In addition, because of the cultural significance of the land to the Pueblo, it is unlikely that the land would be willingly sold.

5-05. Acquisition of Flowage Easement for Affected Area. Under this alternative, the right to flood the subject properties would be acquired. The title to the land would remain in the Pueblo. The Pueblo would be entitled to compensation for lost uses, such as crop production; however, the land, at the owner's discretion, could be converted to more compatible uses, such as, production of wetland type crops, or wildlife habitat.

5-06. Easements on Pueblo land can be negotiated upon approval of the Secretary of the Interior. The Corps of Engineers holds an easement to the existing project lands within the boundary of the Pueblo de Cochiti. It should be noted that during dry years when flood control pools are not high, the high groundwater problem will decrease in scope and at least some portion of the affected land could be returned to production for those years. The estimated cost to acquire a flowage easement on the affected wet fields is $2,101,000. Contact with the Cochiti Pueblo Council, however, has indicated that the Council is strongly opposed to this alternative and is not willing to give up more land for the project.

5-07. Operational Changes for Cochiti Dam. Consideration was given to alternative operations of the reservoir to provide relief from the high groundwater. Changes that would affect the high groundwater problem are draining the permanent pool and eliminating the flood water carry-over aspect of the reservoir operation plan.

5-08. It is probable that lowering the pool would reduce the high groundwater problem, however, draining only the recreation pool will not provide total relief as seepage flows will continue to occur during periods of flood control storage. Evacuation of the recreation pool will eliminate the extensive recreation usage which currently exists at the lake. The recreation pool is further responsible for the increased sediment trap efficiency of the reservoir. Because of this increased sediment trap efficiency, degradation of the Rio Grande channel downstream of the dam has occurred. Non-damaging channel discharges are greater in these reaches than those that existed when construction of the project was completed.

5-09. In addition to the recreation pool, the high groundwater problem is impacted by seasonal flood control storage. In particular, over the last few years, snowmelt runoff in the Rio Grande basin has been above normal resulting in higher pool elevations for all the reservoirs in the system. Plate 8 graphically illustrates the daily reservoir pool elevations that have occurred since construction of the project. These higher pools aggravate the seepage problem during the periods when stored flood waters cannot be released downstream. If regulated releases of flood control storage were not curtailed during the year, high flood control pools would be minimized and seepage flows would not increase as significantly.

5-10. Each of the above changes in operations by themselves will not alleviate the seepage problem below the dam. If the permanent pool and operational changes are implemented, seepage flows are likely to diminish. Seepage problems could still occur during seasonal periods of flood control storage. Determining the reduction of seepage flows if these alternatives were implemented is beyond the scope of this report. Change in the operation criteria of Cochiti Lake would require Congressional authority. Release of stored flood waters when inflows into Cochiti are less than 1,500 cfs would effect the debt status of the State of New Mexico under the Rio Grande Compact. Releases of stored flood waters made when those waters cannot be utilized or stored in downstream reservoirs would have significant impacts on the operations of high yield agricultural lands in the lower portion of the Rio Grande Valley in New Mexico and Texas. During the formulation and authorization process for the Middle Rio Grande Flood Control projects, including Cochiti Lake, the three Rio Grande Compact states, Colorado, New

Mexico and Texas, were very involved in the development of the Cochiti Lake operating criteria. Only after approximately 5 years of negotiations were the States able to agree to the criteria as contained in P.L. 86-645. It is doubtful that the Compact States would agree to a change in operation of Cochiti Lake which would jeopardize the protection provided by the P.L. 86-645 operating criteria.

5-11. Relocation of Farmland. As with all relocation measures, implementation of this alternative involves locating a suitable property that will equitably replace the use and condition of use that is associated with the existing property. Several areas were considered for the development of farmland within the boundaries of the Cochiti Pueblo, including the areas of the Canada de Cochiti and the Santa Fe River below the dam and in Peralta Canyon west of the village of Cochiti. However, because of access difficulties and unsuitable terrain, only the Peralta Canyon area was determined to be a feasible site. The area is located west of the Village of Cochiti roughly the same distance from the village as the existing farmlands. The existing soil in this area is similar to the lands being utilized for agriculture in other areas of the middle valley.

5-12. An area of 780 acres was considered for development of approximately 500 acres of usable, productive farmland. Considerable grading would be required in addition to roads, a pump to deliver water to the primary irrigation ditch, the primary irrigation ditch and a network of smaller ditches to service the farmlands. Operation and maintenance costs for the area include power consumption of the pump and replacement costs for the irrigation system.

5-13. Evaluation of this alternative is based on the required development of 780 acres in Peralta Canyon for farming. This alternative further assumes the existing farmlands are abandoned for agricultural purposes, therefore maintenance costs associated with the existing farm land would be transferred to the new fields. The proposed grading consists of 200 foot wide tiers, terraced with the existing slope. A primary irrigation ditch would be provided along the upper level of the farmlands and then diverted into a network of smaller ditches to service the individual tracts. A pumped delivery system could be installed at the stilling basin of Cochiti dam and a 24 inch pipe placed alongside the existing irrigation ditch to a point near Cochiti Pueblo where it would then cross the existing irrigation ditch to a discharge point on the high level irrigation canal. Associated costs for development of the relocated fields are presented in Table 5-1. Operational costs for the system, also presented in Table 5-1, reflect estimates of power consumption and maintenance and the replacement of the system on a 15 year cycle. Pricing of the water delivery system was based on irrigation needs provided by the Agricultural Agent for Sandoval County. His recommendation was that eight irrigations per year to a depth of 4.4 inches per irrigation was required.

5-14. The total estimated first cost of the system is $5,310,000. The present value of operational costs for a period of 100 years is $3,328,000. The present value of periodic pump and pipe replacements over the 100 year period is $17,000, resulting in a total present value of $8,655,000. Relocation of the farm lands appears to be a viable alternative. Although initial costs are high and annual operation and maintenance costs are

significant this alternative will provide the agricultural land use that has been impacted by the high groundwater problem.

5-15. Raising Farmlands. The existing farmlands could be raised on the order of 4 feet to provide an unsaturated zone for plant growth. This proposal would require that the top soil be removed and stockpiled and that imported permeable materials be brought in and placed on the farmlands. This alternative has some merit in that the farmlands would remain in the same location. The imported material would be granular material from borrow areas.

5-16. The selection of a depth to raise the farmlands presents a problem in that an equilibrium condition in seepage flows may not exist at this time. Groundwater levels may not have stabilized if higher pool elevations are required due to above normal runoff or flood occurrences. The resulting extended storage periods may cause the groundwater levels to increase within the imported fill.

5-17. To raise 487 acres by 4 feet will require approximately 3,227,000 cubic yards of borrow material. As shown in Table 5-2, the estimated cost of this alternative is $22,264,000. Although a viable solution to the problem, this alternative has a substantial uncertainty related to the equilibrium conditions of the groundwater levels. Further analysis is required to establish a sufficient depth of fill if this alternative were considered for implementation.

5-18. Sealing the Reservoir. Several methods for sealing the reservoir were investigated. These include draining the reservoir and installing a 5 foot thick clay layer to the bottom, providing a chemical sealant mixed with clay to the bottom, and providing a chemical sealant that is introduced to the water and allowed to settle out.

5-19. Several methods of lining the reservoir area were investigated. These applications were limited to the recreation pool, and this would not address the total seepage potential. The reservoir surface for the permanent pool is roughly 1,200 acres. The first method proposed lining the reservoir with a 5 foot thick clay blanket. This would require draining the reservoir, and in some areas where slopes are quite steep, placing the clay blanket would not be possible. Therefore elimination of the seepage problem cannot be guaranteed. The second method investigated considered the possibility of using a chemical sealant. One type of chemical sealant is mixed with clay and placed as described above. Another type of chemical sealant is introduced to the water and allowed to settle out and coat the reservoir bottom. This type has never been used in a large reservoir and poses an environmental hazard to fish and other waterlife. Costs associated with this type of alternative range from $58,000,000 to $90,000,000. Due to the uncertainty of results and the extreme cost, this is not considered a viable alternative. As discussed above, this alternative addresses only the permanent pool. Therefore, seepage relief for the flood water carry-over pools is not addressed and would continue.

5-20. Grouting of the Embankment Foundation. Grouting of the embankment foundation was considered. Grouting is accomplished by drilling closely spaced holes along the foundation. These holes are then filled under pressure with a cement or chemical grout. As pressure is maintained on the hole, the grout will migrate from the hole filling fractures or voids in the foundation.

As these voids are filled and the grout sets, the permeability of the soil decreases.

5-21. Chemical grouting in general consists of the introduction of chemical grouts into a soil mass to fill existing voids. Various chemicals are used depending the end result desired. In general, chemicals are mixed with a reactant before injection and selection of the chemical and reactant can be tailored for the required penetration into the soil, strength of the finished grouted mass, or the final permeability.

5-22. Cement grouting consists of a mixture of cement and water which is pumped into the soil mass to fill the voids. The method of grouting normally used requires that the proportions of water and cement be varied starting usually with a thin grout and increasing the cement content as the voids begin to fill. Some limited control of the penetration can be accomplished by varying the thickness of the grout. Cement - Bentonite mixtures are used to provide added penetration or superior sealing to the cement water mixture.

5-23. Bedrock depths for the project are in excess of 200 feet in some reaches. Grouting of alluviums has been generally limited to near surface materials (30' or less) because of a number of problems. Grouting in a soil mass is difficult because soils are stratified and deposited in layers so grouts will penetrate the more open layers and may not penetrate the pervious layers. This can leave quite a few "windows" in the grout curtain.

5-24. Depth of the soil mass is important because drilled grout holes tend to drift from the desired direction and at depth can wander quite far from the desired location. Proper grouting pressure in a soil mass is uncertain because if too low, no penetration is achieved and if too high the soil may fracture, forming a fissure (usually vertical) which allows the grout to escape.

5-25. From the above discussion, it is clear that successful grouting to depths in excess of 200 feet at Cochiti presents a nearly impossible feat. The soil mass is stratified, not well known at depth and consists of sand and gravel material with layers of clay. Drilling in these soils to a spacing of 2 to 3 feet at depths of 200 feet is extremely difficult. In addition, although grouting will increase the seepage path, it is unlikely that it would provide meaningful relief downstream. Unless total and complete penetration can be achieved, the reduction in seepage quantities will be minor.

5-26. A cost estimate for the cement grouting alternative was developed and is presented in Table 5-3. Using conventional cement grouting measures for the Rio Grande and Canada de Cochiti reaches to a depth of 200 feet would have a estimated total first cost of $60,085,000. Using chemical grout was found to have an estimated total first cost of $68,950,000. In conclusion, despite the large expenditures of funds for an upstream cutoff, the probability is that the seepage problem would not be significantly diminished. This is not a viable alternative.

5-27. Installation of Various Types of Cutoff Trenches in the Embankment Foundation. Consideration was given to construction of upstream cutoff trenches. A cutoff trench is an impervious barrier placed to block the path of seepage flows beneath the embankment. Cutoff trenches can be full or

partial. Partial cutoff trenches are used primarily to lengthen the seepage flow path to protect the downstream toe of the structure from failure. Foundation seepage flows exist in areas of Cochiti Dam where a partial cutoff was provided during construction.

5-28. The types of upstream partial cutoffs considered consist of slurry trenches and excavated cutoff trenches. Slurry trenches are trenches excavated with dragline and kept open by introducing a slurry of bentonite and water. The trenches are backfilled with the excavated material and mixed with the bentonite. The resulting trench forms an impervious barrier. The cost of constructing a trench increases substantially with depth because the quantities of material to be excavated increase exponentially, dewatering may be required and flattened side slopes for construction safety may be necessary.

5-29. For comparison to other alternatives, a depth of cutoff of 100 feet was evaluated. This is the upper limit of possible slurry trench construction. The total cost for this alternative is estimated to be $51,925,000. The cost estimate for this alternative is presented in Table 5-4.

5-30. Although sheet piling can be used as a cutoff trench, this measure was not considered because the sand, gravel, cobbles and large rock present in the foundation would prevent the piles from being driven to any sufficient depth, without considerable damage to the piles and opening of the interlocks.

5-31. Cutoff trenches serve the same function as grout curtains and are subject to the same problems discussed in the previous paragraphs. As with the proposed grout curtains, unless a full total depth cutoff can be achieved, seepage flows will only be diminished slightly. Partial cutoff trenches are effective in preventing foundation seepage flows from endangering the stability of the structure. Partial cutoff trenches are not effective in preventing downstream seepage flows, such as occurs at Cochiti Dam. For these reasons, as well as the prohibitive costs, installation of a cutoff trench is not considered a feasible alternative.

5-32. Sealing or Lining the Canals. Immediately below the dam, the existing canals act as a collection or relief point for the seepage flows. Groundwater contours developed for the area indicate that dam abutment and foundation seepage are the major contributors to the high groundwater problems on the Pueblo de Cochiti lands in these areas. Lining of the existing canals in this area will not eliminate the high groundwater problem. Further, implementing this alternative could aggravate the high groundwater problem downstream because interception of some of the seepage flows could not be accomplished at the existing ditches.

5-33. As discussed previously, the cause of the seepage problems between wells numbered 8-1 and 8-2 to about well number 9-2 on the west side of the Rio Grande and from well 4-3 to about well number 4-4 on the east side (see Plate 6) is a combination of the groundwater mound and canal seepage. However, it is estimated that seepage flows from the dam foundation is still the primary source of the high groundwater problem. For these reasons, this is not considered a viable alternative.

5-33. Installation of Wells. A system of wells was considered as a means to

provide a lower water table below Cochiti Dam. In general, well layouts are designed so that pumped wells create a depressed water table characterized as a "cone" and the overlapping cones produce a specified reduction in the groundwater surface at the specified location. Two well schemes were analyzed for Cochiti Dam. These schemes consisted of pumping the existing relief wells and installation of new wells throughout the farmlands.

5-34. The first scheme involved pumping the existing relief wells located along the toe of the dam from station 14+00A to beyond station 55+00A. This scheme was not considered further because the wells are generally shallow, extending only 65 to 85 feet in depth. Depth to water and water surface elevations in the wells indicate that pumping to their bottom would reduce the water surface elevation 20 to 40 feet at the wells; however, the bottom of the wells are above elevation 5250. Since the wet fields are near elevation 5235, a reduction in the seepage at the relief well line would lessen the quantity of seepage flows but would not provide the total relief.

5-35. Wells located throughout the affected farmlands were evaluated to achieve a reduction of the groundwater table of 3 feet midway between the wells. A grid spacing of 300 feet and a drawdown of 22.2 feet was determined to produce the required results. Wells nearest the canal require a spacing of 50 feet from the canal. Flow quantity for each well is calculated at 313 gallons per minute. Continuous pumping was assumed for this analysis to maintain the drawdown conditions. Estimates of first and operational costs for this alternative are presented in Table 5-5. The total estimated first cost for the proposed installation of the shallow well system is $2,373,000. Replacement costs are based on a 15 year replacement cycle. Assuming a 100 year life, the present worth of the replacement costs are $825,800. The present value of annual operating expenses for electricity ($1,870,400/year) only is estimated at $21,060,000, resulting in a total cost of $24,259,000.

5-36. The installation of new wells located in the farmlands will provide the required relief. A major consideration associated with this alternative is the ongoing operation and maintenance costs.

5-37. Installation of Drainage Ditches in the Affected Area. Open drainage ditches accomplish the drawdown of the water table in an area by allowing the groundwater to drain into the ditch. The ditch then conveys the water to the river or wasteway. The deeper the ditch and the closer together the ditches, the more the drawdown that can be achieved. The ditches are easily constructed and require only nominal maintenance.

5-38. Drainage ditches could provide the same relief as proposed by a well system. Depth of ditches in the Cochiti area are limited by the outlet elevation at the Rio Grande to approximately 6 or 7 feet to provide positive drainage. This alternative consists of constructing a grid of drainage ditches on 460 foot centers to a depth of 6 feet. This system would produce a mid-ditch water surface elevation greater than 3 feet below the ground surface. Ditch excavation was based on a bottom width of 4 feet with side slopes of 1 vertical to 3 horizontal.

5-39. The estimated total first cost of a ditch system is $2,305,000 (see Table 5-6). The average annual operation and maintenance cost for this alternative is $100,620, which over a 100 year period has a present value of

$1,133,000. The total cost of this alternative is $3,438,000. Installation of the ditches would, however, require nearly 77 acres of the available farmland. The first cost of ditches is relatively low and maintenance costs are not as high as with a well system. The Pueblo has expressed their concern that the open ditches afford a safety hazard for livestock and children and, if flows are not great, could provide breeding areas for mosquitoes. Although this alternative will increase the number of open ditches in the area, any hazard created is incremental to that represented by the existing ditches and canals.

5-40. Buried Drainage Collector Systems in the Affected Area. The buried drainage collector alternative consists of a grid layout of perforated pipes buried below the affected farmlands. The buried collector system operates similar to the open ditches. The perforated pipe provides an open slot in which groundwater flows are collected. The spacing and depth dictate the amount that the groundwater can be lowered. The perforated pipes are installed in open trenches and a filter is provided to prevent soil materials from entering the pipe. The trenches are then backfilled and the surface can be returned to farm use.

5-41. An examination of the system installed on the 17 acre tract in 1977 indicates that the system is generally working well and water levels have been controlled. Some deficiencies, however, have been noted in this system since construction. These consist of maintenance work required to remove root growth and repair what appears to be breaks in the lines where the surrounding filter material has entered the pipe. One area, near manhole no. 4, has developed a saturated condition. Although not verified, it appears that this problem is caused by either a collapsed portion of pipe, a clogged portion of pipe, or a grade reversal that is preventing this portion of the system from operating as originally designed. Some concern for the life of the pipe (CMP) and the cost of future maintenance have been noted. These problems can be solved by using filter fabric and other pipe materials.

5-42. The proposed drainage collector system for Cochiti consists of drainage pipes spaced 230 feet apart generally running in a north-south direction. Connecting pipes are provided running east-west to convey the collected flows to the Rio Grande. The pipe sizes selected are 24 inch and 36 inch diameter for the entire system. An illustration of this system is presented on Plate 8. As shown in Table 5-7, the estimated total first cost of the buried drainage collector system is $3,734,300. Annual operation and maintenance costs are estimated at $0.25 per foot per year or $20,960 per year. The present value of the annual operation expenses is $236,000. The total cost is $3,970,000.

5-44. The buried drainage collector system presents a viable solution to the seepage problem. The system has proven itself on the 17 acre tract mentioned earlier. The system is not maintenance free and does require upkeep of the system to insure proper function. Drawbacks include an uncertain life span for the buried asphalt coated corrugated metal pipes. Other pipe may be considered to resolve this problem.

5-45. Combination of the above Alternatives. Several combination of the above alternatives were considered. These included wells and buried drainage collectors, cutoff trenches between the farmlands and the dam, and a system of

open drainage ditches and buried drainage collectors. The first two combinations provided no apparent enhancement over considering the alternatives separately. These systems have high costs or unproven results due to the individual problems associated with each alternative as discussed above.

5-46. The third combination, open drainage ditches and buried drainage collectors, does provide a system that allows low cost construction outside the fields with the open ditches and continued farming within the fields with the buried drainage collectors. The estimated first cost of the combined system is $3,218,000 (see Table 5-8). The present value of the annual cost is $1,302,000, for a total cost of $4,520,000. Drawbacks to this alternative are as previously mentioned; the incremental hazard to children and livestock and the possibility of creating a mosquito problem.

5-43. Reclamation. In addition to the above costs, investigations were made to determine the associated costs to reclaim the fields for production. Namely, these costs are associated with leaching salt deposits from the land. In discussions with the local Soil Conservation Service Office, the general feeling was that salt deposition would not be a significant factor in reclaiming the fields. Salt deposits form on lands with water tables within 4 to 6 inches of the surface. The moisture is drawn to the surface by capillary action and evaporated leaving a high concentration of salt deposits. In the case of the Cochiti fields where water is standing on the surface and has not had an opportunity to evaporate, salt deposits will not be significant. Additionally, the soil permeability in the area will allow leaching of any salt deposits within the first few irrigations. Therefore, the associated costs for leaching are insignificant to the cost analysis.

TABLE 5-1
Cost Estimate for Relocation of Farmlands
(October 1987 Price Levels, 8 7/8%)

Item	Unit	Quantity	Cost	Amount
Grading including site grading, main and secondary irrigation ditches, roads, wasteways, etc.	CY	2,261,000	$ 1.05	$3,391,500
Culverts	LF	2,700	25.00	67,500
Siphons	EA	3	11,500.00	34,500
Water System:				
150 Break Horsepower Pump	EA	1	8,800.00	8,800
24" Schedule 40 Steel pipe (includes trenching)	LF	22,300	50.00	1,115,000
Subtotal				$4,617,300
Contingencies (15%)				692,700
Total Construction First Cost				$5,310,000

Operational Costs:
Electricity a $0.09/Kilowatt Hour, 150 Break Horsepower Pump
Time of Operation - 1920 Hours/Year
Power Costs - $25,146.27/Year
Assumed Pump life span - 15 Years
Assumed Pipe life span - 50 Years

Present value of annual power costs of $25,146.27 for 100 year period- $283,100.
Present value of 6 pump and 1 pipe purchases - $3,328,000 and $17,000.

Total Costs $8,655,000

TABLE 5-2
Estimated Costs to Raise 487 Acres of Farmlands
(October 1987 Price Levels, 8 7/8%)

Item	Unit	Quantity	Cost	Amount
Borrow/imported Fill	CY	3,226,700	$6.00 1/	$19,360,000
Contingencies 15%				2,904,000
Total Cost				$22,264,000

1/ Unit price of $6.00 per CY includes removal and replacement of topsoil, borrow, shrinkage and regrading.

TABLE 5-3
Cost Estimate for Cement Grouting of Embankment Foundation
(October 1987 Price Levels, 8 7/8%)

Item	Unit	Quantity	Cost	Amount
Rio Grande west overbank: (Depth = 200 feet, Length = 3000 feet, No. of grout holes required = 3000)				
Cement	CF	1,800,000	$17.00 1/	$30,600,000
Drilling	LF	600,000	10.00 1/	6,000,000
Canada de Cochiti: (Depth = 110 feet, Length = 3500 feet, No. of grout holes required = 3500)				
Cement	CF	1,155,000	17.00	$19,635,000
Drilling	LF	385,000	10.00	3,850,000
Santa Fe River: (No grouting proposed. The basalt formation in the Santa Fe River contains large voids that make grouting not feasible.)				
Total Cost				$60,085,000

1/ Includes labor, machinery, etc.

TABLE 5-4
Cost Estimate for Installation of Cutoff trench
(October 1987 Price Levels, 8 7/8%)

Item	Unit	Quantity	Cost	Amount
Rio Grande:				
Slurry Trench	SF	300,000	$ 12.00	$ 3,600,000
Excavation	CY	3,445,000	5.00	17,225,000
Canada de Cochiti:				
Slurry Trench	SF	350,000	12.00	4,200,000
Excavation	CY	4,020,000	5.00	20,100,000
Subtotal				$ 45,125,000
Contingencies 15%				6,800,000
Total Cost				$ 51,925,000

TABLE 5-5
Cost Estimate for Installation of Shallow Well System
(October 1987 Price Levels, 8 7/8%)

Item	Unit	Quantity	Cost	Amount
Installed Well w/casing, 7 1/2 HP pump, etc	EA	327	$ 4100.00	$ 1,340,700
Drilling of wells (56 feet)	LF	18,312	10.00	183,120
4" pipe for Network	LF	60,780	5.95	343,400
6" pipe for Network	LF	20,580	7.60	156,408
Excavation for Ditch	CY	9900	4.00	39,600
Subtotal				$ 2,063,200
Contingencies 15%				309,700
Total Construction First Cost				$ 2,373,000

Operational Costs:
Electricity - $1,870,365/Year
Assumed System life span - 15 Years

Present value of annual power costs of $1,870,365 for 100 year period- $21,060,000.
Present value of 6 system replacements - $826,000.

Total Cost $24,259,000

TABLE 5-6
Cost Estimated for Installation of Open Ditch Drainage System
(October 1987 Price Levels, 8 7/8%)

Item	Unit	Quantity	Cost	Amount
Excavation	CY	490900	$ 4.00	$ 1,963,700
Crossings:				
Drainage Equipment	EA	13	1,275.00	16,575
Irrigation Ditch	EA	25	970.00	24,250
Subtotal				$ 2,004,500
Contingencies 15%				300,500
Total First Cost				$ 2,305,000

Operational Costs:
Operation and Maintenance costs estimated at $1.20 per foot per year.
Total Annual Cost - $100,620/year.

Present Value of Annual Cost for 100 year period - $1,133,000.

Total Cost $ 3,438,000

TABLE 5-7
Cost Estimate for Installation of Buried Collector Drainage System
(October 1987 Price Levels, 8 7/8%)

Item	Unit	Quantity	Cost	Amount
24" Perforated Asphalt Coated Corrugated Pipe	FT	75,010	$ 30.00	$ 2,250,300
36" Perforated Asphalt Coated Corrugated Pipe	FT	4,890	38.00	185,800
24" Asphalt Coated Corrugated Pipe	FT	1,300	$ 25.00	32,500
36" Asphalt Coated Corrugated Pipe	FT	2,650	35.00	92,750
36" and 48" Manholes	LS	112		96,250
Filter Fabric	SY	57,490	1.35	77,600
Excavation	CY	38,942	2.00	77,900
Random Fill	CY	4,455	0.50	2,230
Parshall Flumes	LS	9		12,600
Dewatering	LS			419,250
Subtotal				$ 3,247,200
Contingencies 15%				486,800
Total First Cost				$ 3,734,000

Operational Costs:
Operation and Maintenance costs estimated at $0.25 per foot per year.
Total Annual Cost - $20,960/year.

Present Value of Annual Cost for 100 year period - $236,000.

Total Cost $ 3,970,000

TABLE 5-8
Cost Estimate for Combination of Drainage Ditches
and Buried Collector System
(October 1987 Price Levels, 8 7/8%)

Item	Unit	Quantity	Cost	Amount
24" Perforated Asphalt Coated Corrugated Pipe	FT	66,750	$ 30.00	$ 2,002,500
36" Perforated Asphalt Coated Corrugated Pipe	FT	2,990	38.00	113,600
Excavation for trench	CY	31,642	2.00	63,284
36" and 48" Manholes	LS	93		79,500
Filter Fabric	SY	49,706	1.35	67,103
Excavation	CY	31,642	2.00	63,284
Dewatering	LS			348,500
Excavation Open Ditch	CY	81,800	5.00	409,000
Subtotal				$ 2,798,300
Contingencies 15%				419,700
Total First Cost				$ 3,218,000

Operational Costs:
Operation and Maintenance costs assumed to be $0.25 per foot per year for pipe and $1.20 per foot per year for open ditch.
Total Annual Cost - $115,600/year.

Present Value of Annual Cost for 100 year period - $1,302,000.

Total Cost $ 4,520,000

VI. Environmental Considerations

6-01. General. Any land or water disturbing activity in the study area has significant potential to affect the mainstem of the Rio Grande and the associated, cottonwood-dominated, riparian forest. In the event irrigated agricultural activity were relocated to an upland site, it is highly likely that cultural resources would be affected. However, with an on-site solution such as the proposed subdrains, there would be little or no cultural resources impact. There are two major socioeconomic considerations. Substantial Cochiti Tribal traditions are embodied in the existence, location, and function of the agricultural activity as it has persisted over time. Also the income generating characteristics of that activity affect the tribe overall as well as the various individuals who are involved.

6-02. Status of Compliance with Applicable Laws and Regulations. The present discussions are not intended to exhibit or initiate compliance with the various requirements. Such procedures as: Fish and Wildlife Coordination; Endangered Species Consultation, preparation of a National Environmental Policy Act Document; and implementation of the Section 106 Guidelines of the U.S. Advisory Council on Historic Preservation will be completed as part of the design studies.

6-03. Fish, Wildlife and Habitat Resources. The existing irrigated lands are situated adjacent to mature riparian "bosque" woodlands along the Rio Grande. This type of habitat or vegetation is subject to intense and widespread concern throughout New Mexico and the southwest. The loss of any mature cottonwood trees tends to be controversial and would be strictly minimized if not avoided completely. The Rio Grande along the study area is a high quality, tailwater fishery for small-mouth bass, rainbow trout, channel catfish, and other game fish. Fishing is limited due to tribal ownership of the land. However, some public fishing access is provided via easements connected with the Corps of Engineers operating project. A Fish and Wildlife Service Coordination Act report will be prepared because of the proximity of the Rio Grande and the relationship to the existing Corps project to any proposal that might be considered.

6-04. Endangered species. The bald eagle (Haliaeetus leucocephalus); peregrine falcon (Falco peregrinus); and whooping crane (Grus americana) have been identified by the U.S. Fish and Wildlife Service as threatened or endangered species which "... may be affected..." by the considered action. The New Mexico Department of Game and Fish will also be contacted for information concerning fish, wildlife, and plants of state concern. The bald eagle is likely to be of special concern since some 25 to 50 of these birds overwinter each year in the vicinity of Cochiti Lake. The bosque woodlands below Cochiti Dam and along the Rio Grande adjacent to the study area are used extensively as a feeding area by bald eagles from November to March.

6-05. Cultural Resources. Areas subject to land disturbance as a result of correction of the wet field problem may contain cultural resources. In their present location, the fields have been repeatedly disturbed and there is only a small likelihood of undisturbed resources being present. In the event of relocation of the irrigated agricultural activity to an upland site, the probability of encountering undisturbed, National Register eligible resources is great. Any cultural resources survey, testing, or mitigation which may be

required in the course of Section 106 and other compliance will be coordinated with the Cochiti Tribal Council as well as with the New Mexico State Historic Preservation Office and the U.S. Advisory Council.

6-06. Resources which could be reasonably expected to occur in the vicinity range from Basketmaker through the entire Pueblo cultural series. It is also possible that Archaic or even Paleo-indian affiliated materials could be encountered.

6-07. Social and Economic Implications. Cultural, traditional, and possibly religious factors affect and may substantially exceed economic productivity considerations in the Cochiti Tribal perceptions of the affected irrigated agricultural fields. Based strictly on agricultural economics, the approximately 500 acres of land which presently are affected by seepage flows represent an annual loss which, in one sense, could be represented in terms of dollars. However, it is not presently expected that a dollar amount necessarily represents the total cultural and traditional impact on the Cochiti tribe. The latter values are intangible and not known. However, the best available evaluation which can presently be made is to acknowledge that these values are of significant tribal importance.

VII. Conclusions

7-01. Approximately 500 acres of the Pueblo de Cochiti farm lands cannot be farmed because of standing water in the fields or because there is insufficient depth of freely draining soil due to the high groundwater table. This high groundwater problem on the Pueblo lands can be attributed to foundation seepage from Cochiti Dam. A wide range of structural and non structural alternatives have been formulated to alleviate this high groundwater problem. Evaluation of the alternatives was based on performance, feasibility of construction and cost. Ultimate acceptance of an alternative must also consider that the Pueblo strongly objects to any alternative that will not return the land to its traditional and historic use.

7-02. Table 7-1 presents a summary of each alternative evaluated. Non-structural solutions, while providing compensation or reducing the seepage flows would not eliminate the high groundwater problem. On a purely economic basis, the structural alternative that would provide the required relief at the least cost is installation of a system of open drainage ditches. This alternative has an estimated total cost of $3,438,000. However, some land would be lost to the construction of the ditches and the Pueblo has expressed concern that the open ditches would present a hazard to livestock and children. The next least costly structural alternative is the buried collector system at a total cost of $3,970,000. It has been demonstrated that this alternative can provide the required relief. Additionally, installation is not complex, operation and maintenance costs are low and there are no significant environmental or safety impacts.

7-03. This report concludes that there is a significant groundwater problem on the Pueblo de Cochiti lands downstream of Cochiti Dam. This high groundwater problem is primarily the result of foundation seepage from Cochiti Dam. This report further concludes that several adequate structural solutions exist to alleviate the problem.

TABLE 7-1

JMMARY OF ALTERNATIVES

ALTERNATIVE	T :AL PROJECT COST *	FEASIBILITY
No Action	$0	Will not provide relief from the seepage problem.
Fee Purchase of Land	$2,626,000	Purchase of Pueblo land is prohibited. Will not allow Pueblo to again farm their land.
Acquisition of Flowage Ease	:nt $2,101,000	Viable nonstructural alternative, however, will not return land to traditional farming use.
Operational Changes	ost Benefits	Average annual recreational benefits of over $5.0 million will be lost. Wildlife enhancement benefits and sediment reduction benefits will also be lost. Efficient use and control of the Rio Grande waters will be lost due to inability to operate reservoir for carry-over flood control storage. This alternative will not completely eliminate the problem.
Relocation of Farmland	$8,655,000	Viable alternative but requires additional Pueblo land.
Raising of Farmland	$22,264,000	May only provide temporary relief because groundwater level may continue to rise.
Sealing the Reservoir	$58 :o $90 million	Extremely high first cost with uncertain results.
Grouting of Embankment Foundation	$60,085,000	Technically impractical. Possibility of full cutoff remote. Partial cutoff does little for downstream relief.
Installation of Cutoff Trenches	$51,925,000	Technically impractical. Partial cutoff trench will not provide relief.

TABLE 7-1 (cont)

SUMMARY OF ALTERNATIVES

ALTERNATIVE	TOTAL PROJECT COST *	FEASIBILITY
Sealing and Lining Canals	Not Determined	Required relief will not be provided to the lands immediately below the dam.
Installation of Wells	$24,259,000	Viable structural alternative. Operation and Maintenance costs are significant.
Installation of Drainage Ditches	$3,438,000	Viable structural alternative. 17 acres of farmland required to construct ditches. Open ditches present an incremental safety hazard to livestock and residents.
Buried Collector System	$3,970,000	Viable structural alternative.
Combination of Subdrain System and Open Ditches	$4,520,000	Viable structural alternative.

*Total Project Cost based on construction first cost, replacement costs and operation and maintenance costs for 100 year economic life at 8 7/8% interest rate.

PLATES

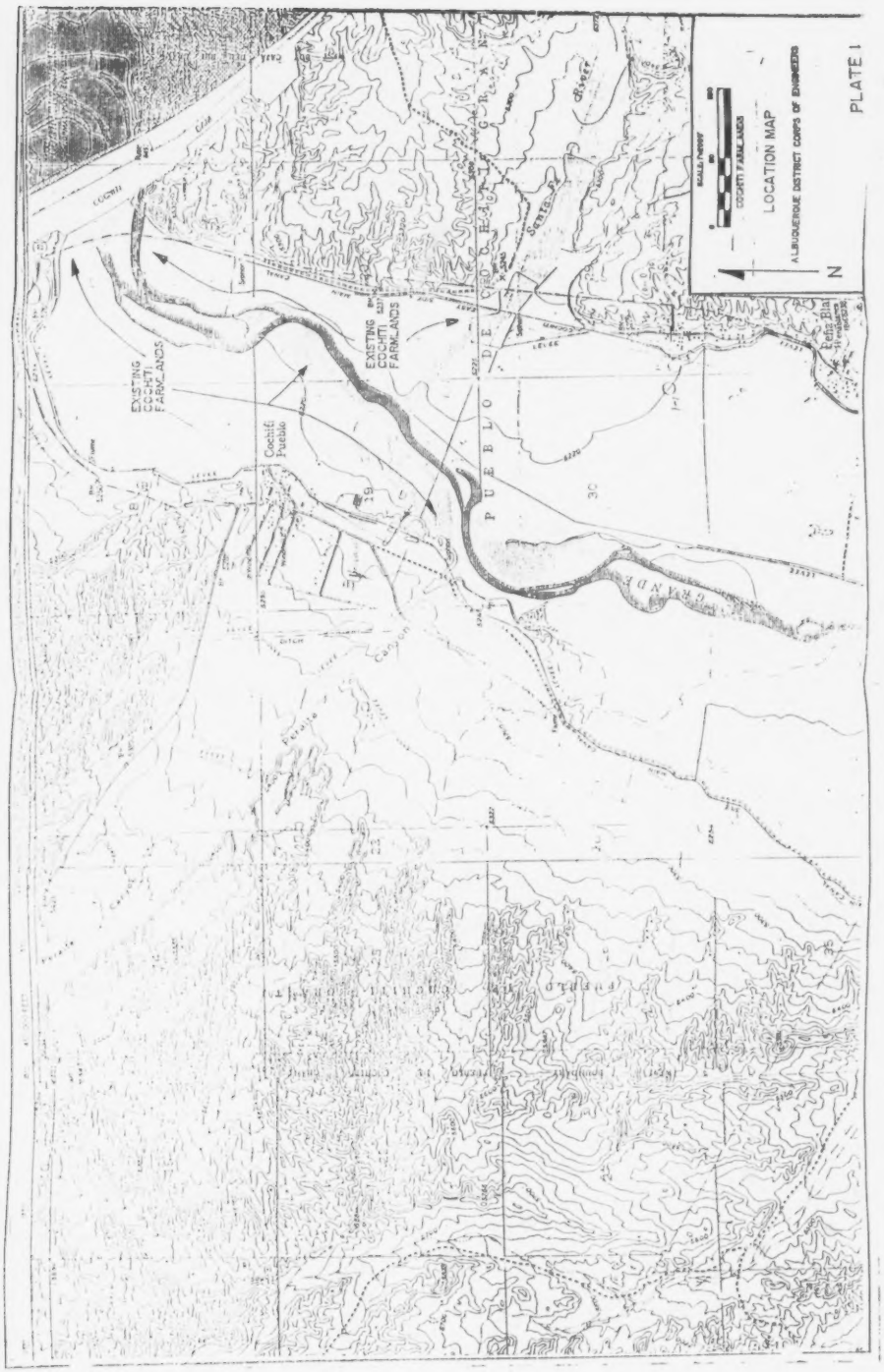
PLATE I
LOCATION MAP
ALBUQUERQUE DISTRICT CORPS OF ENGINEERS
COCHITI FARMLANDS
N
EXISTING COCHITI FARMLANDS
EXISTING COCHITI FARMLANDS
Cochiti Pueblo
PUEBLO DE COCHITI GRANT
Rio Grande
Santa Fe
Pueblo
Tetilla Peak
Cochiti
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Canyon
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Grant
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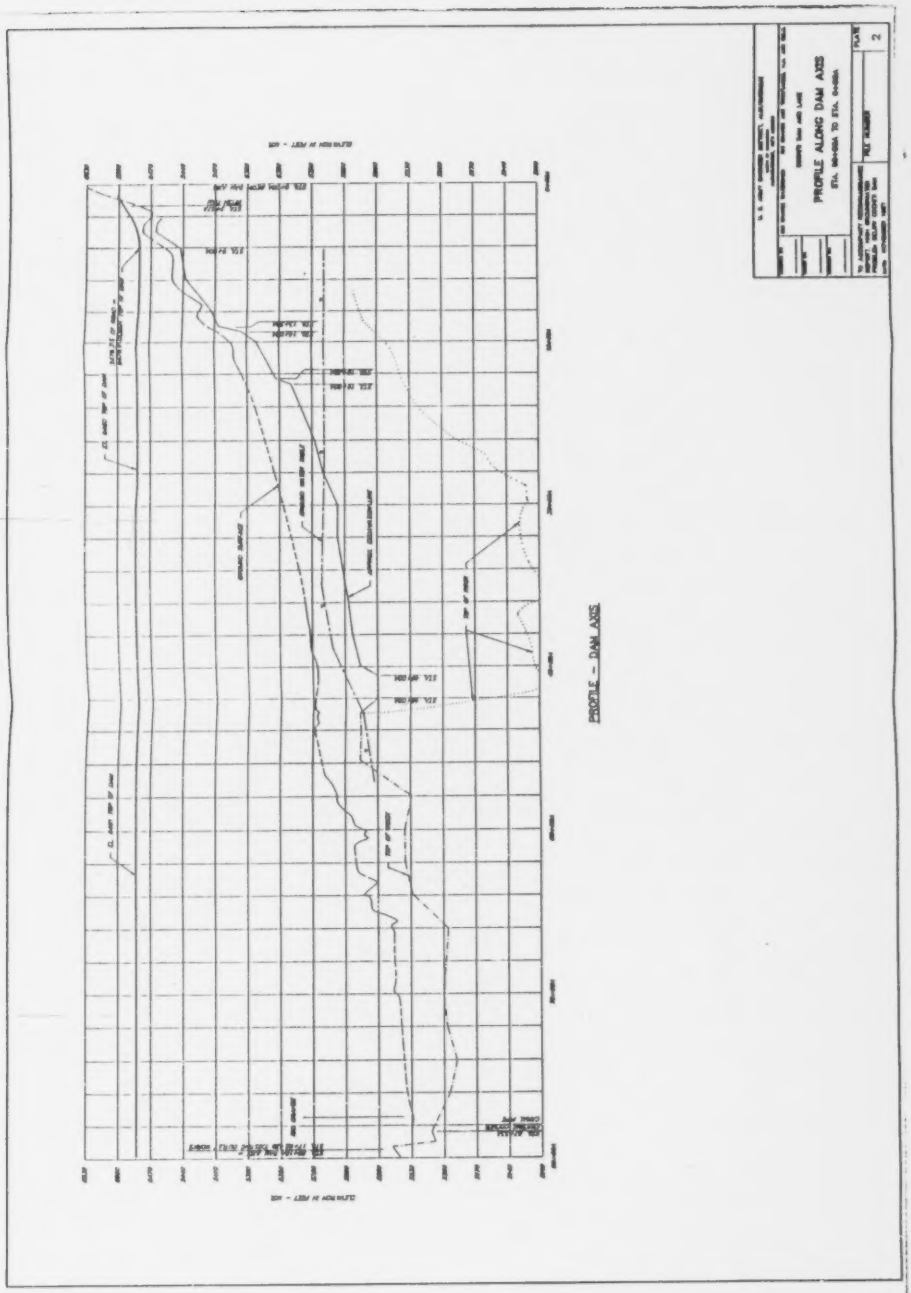
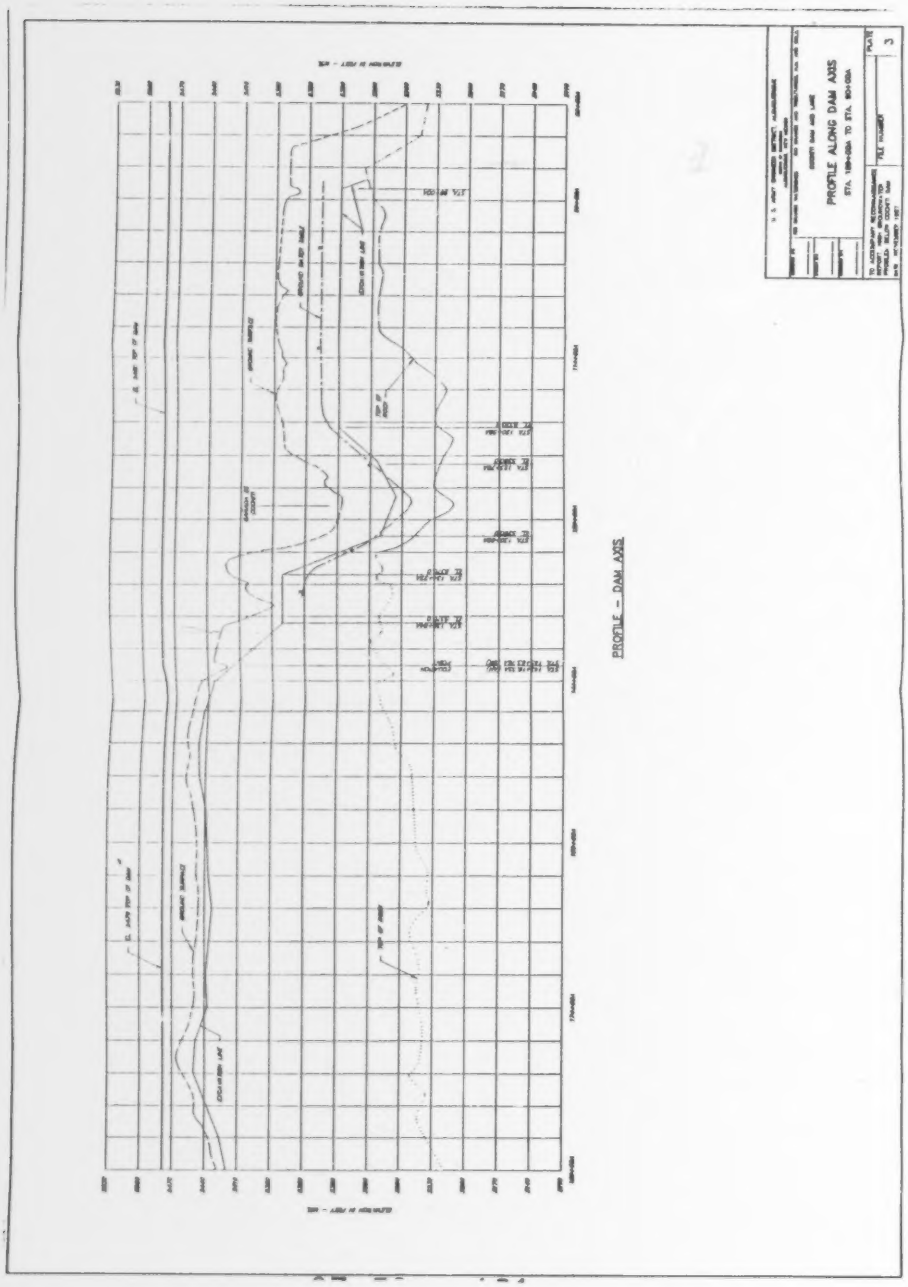
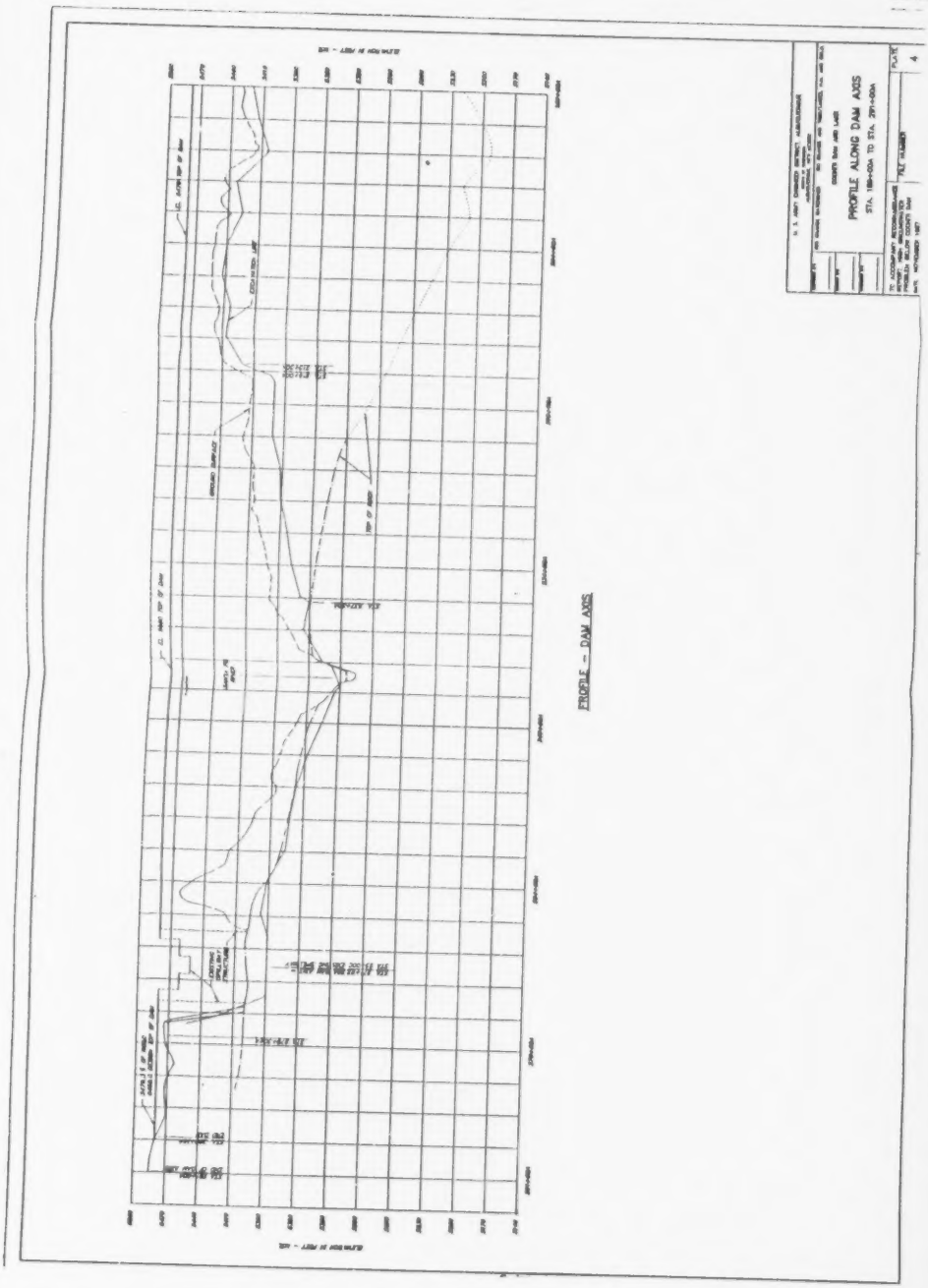
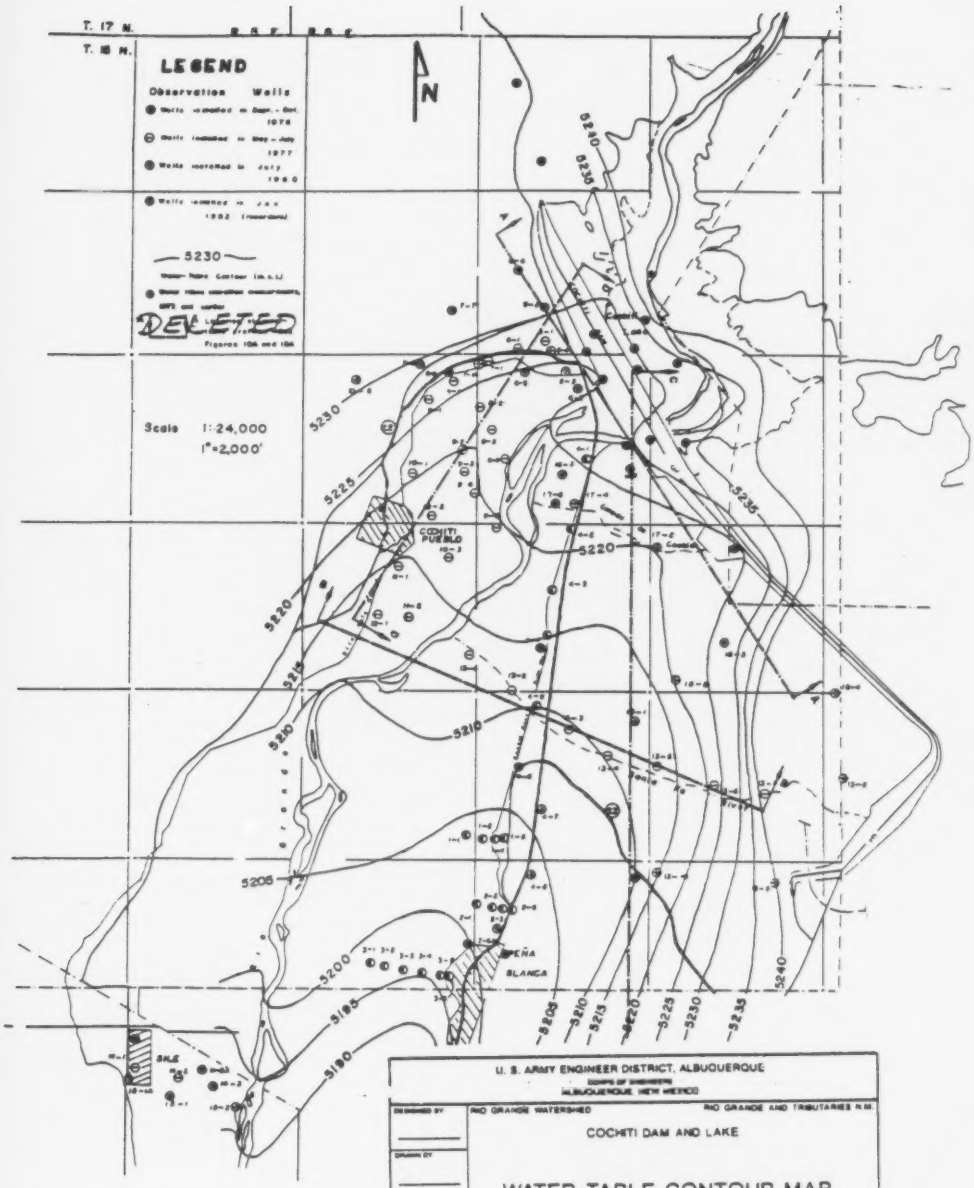

PROFILE ALONG DAM AXIS
PROFILE - DAM AXIS


PROFILE ALONG DAM AXIS
STA. 188+66A TO STA. 80+66A
PLATE 3
PROFILE — DAM AXIS


PROFILE ALONG DAM AXIS
STA. 188+00A TO STA. 291+00A
PROFILE - DAM AXIS



U. S. ARMY ENGINEER DISTRICT, ALBUQUERQUE
CORPS OF ENGINEERS
ALBUQUERQUE, NEW MEXICO

RIO GRANDE WATERSHED — RIO GRANDE AND TRIBUTARIES N.M.

COCHITI DAM AND LAKE

WATER TABLE CONTOUR MAP
PREDAM

TO ACCOMPANY RECON REPORT HIGH GROUNDWATER PROBLEM BELOW COCHITI DAM

FILE NUMBER

PLATE 5

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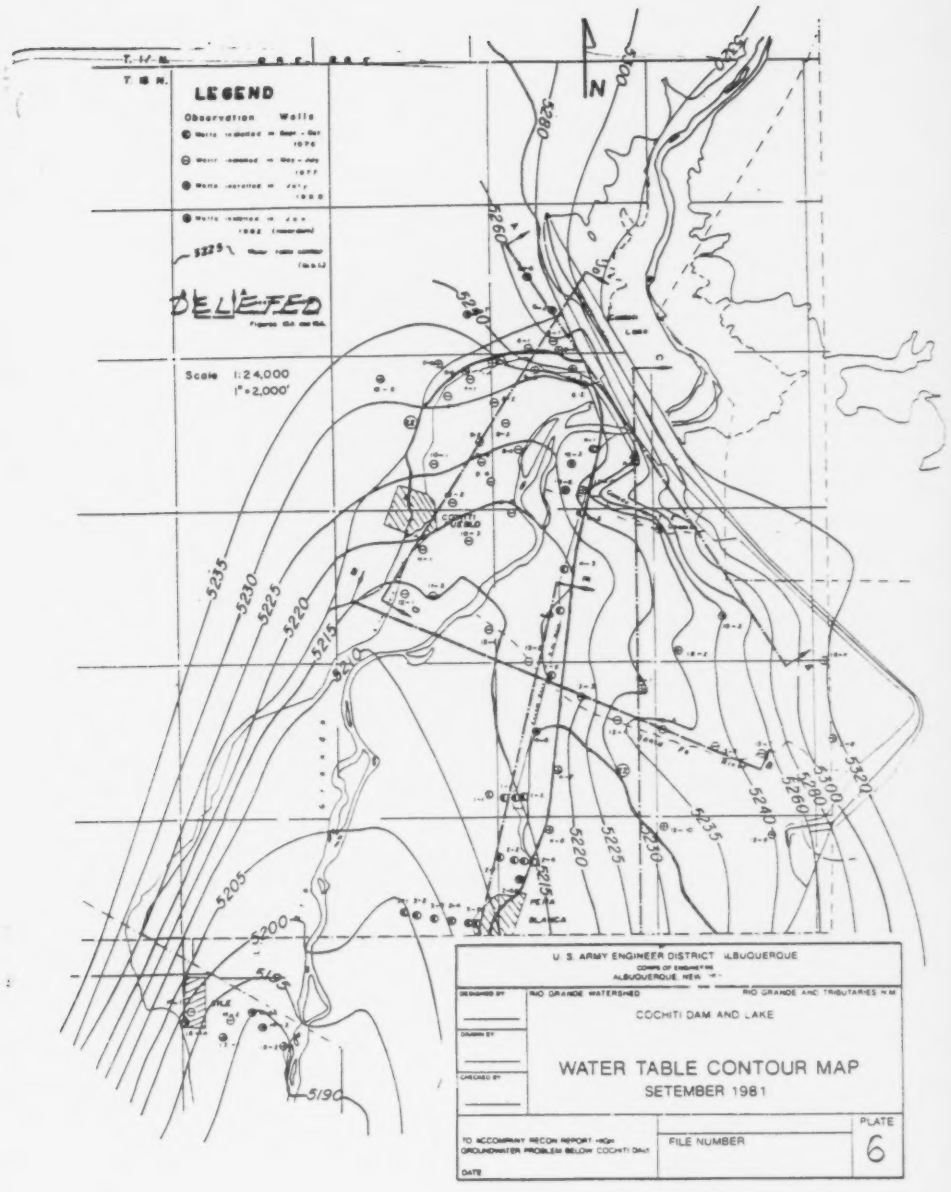
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COCHITI PUEBLO
PEÑA BLANCA
U. S. ARMY ENGINEER DISTRICT ALBUQUERQUE
CORPS OF ENGINEERS
ALBUQUERQUE, NEW MEXICO
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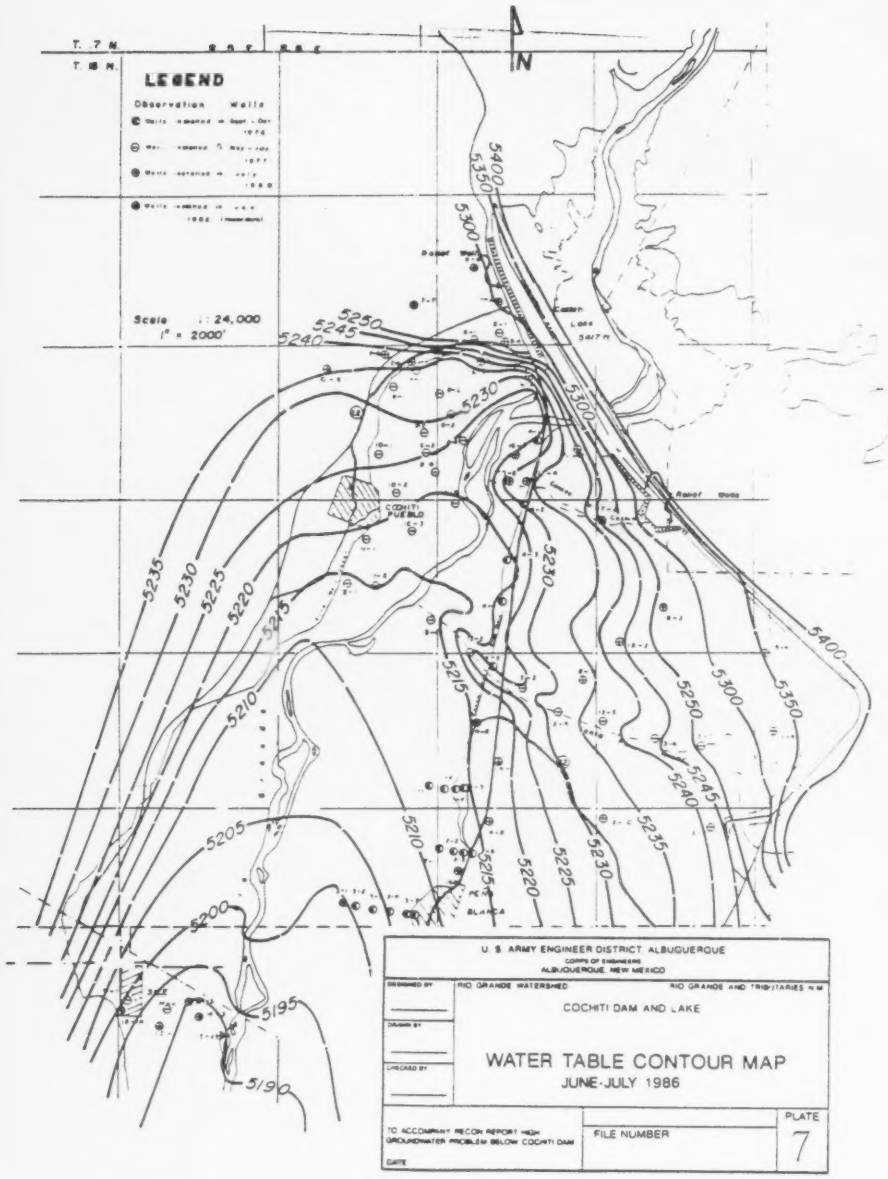
RIO GRANDE WATERSHED
RIO GRANDE AND TRIBUTARIES N.M.
COCHITI DAM AND LAKE
WATER TABLE CONTOUR MAP
SETEMBER 1981
TO ACCOMPANY RECON REPORT HIGH GROUNDWATER PROBLEM BELOW COCHITI DAM
DATE
FILE NUMBER
PLATE
6



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ALBUQUERQUE, NEW MEXICO

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RIO GRANDE WATERSHED — RIO GRANDE AND TRIBUTARIES N.M.

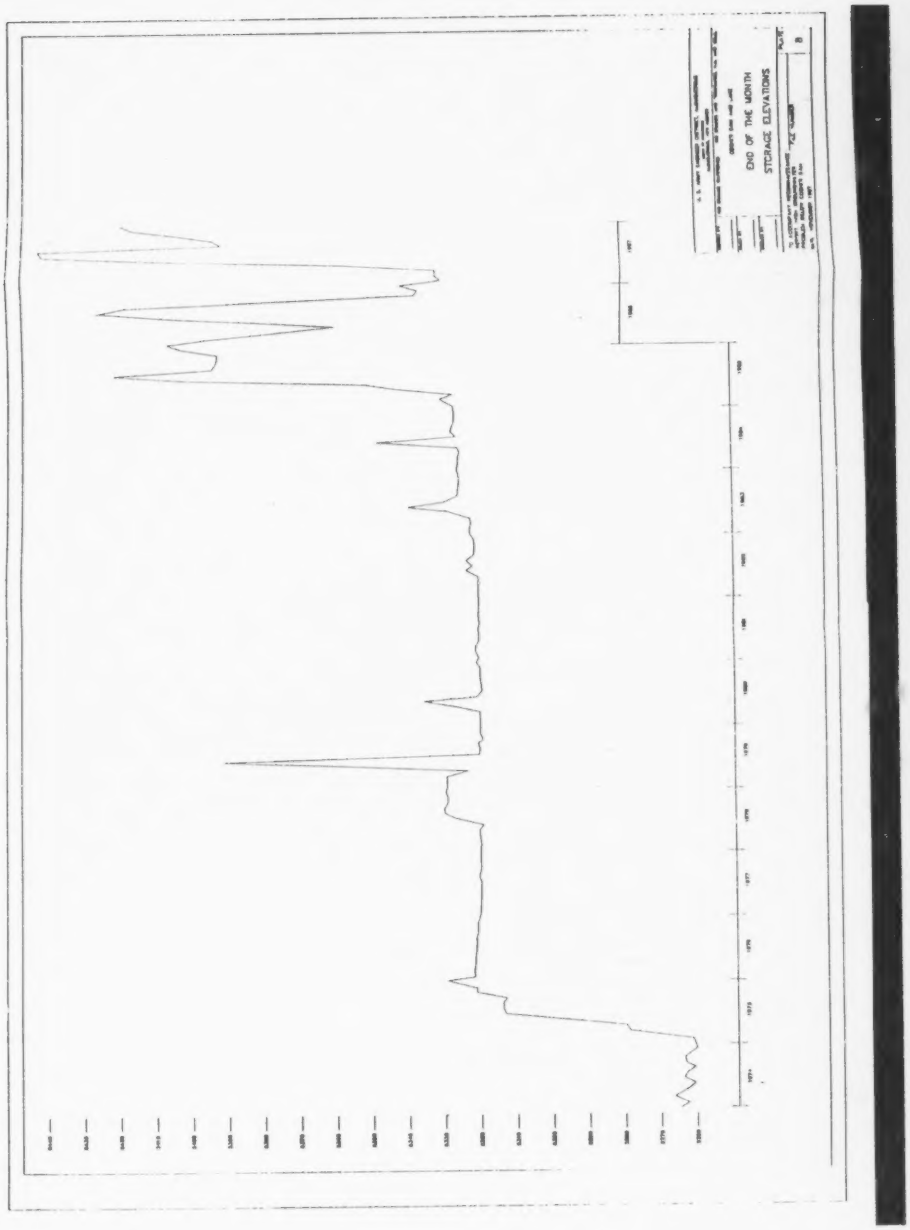
COCHITI DAM AND LAKE

WATER TABLE CONTOUR MAP
JUNE-JULY 1986

TO ACCOMPANY RECON REPORT HIGH GROUNDWATER PROBLEM BELOW COCHITI DAM

FILE NUMBER

PLATE 7


END OF THE MONTH
STORAGE ELEVATIONS

PREPARED STATEMENT OF BILL RICHARDSON, U.S. REPRESENTATIVE FROM NEW MEXICO

Thank you, Mr. Chairman, for the opportunity to make a few brief comments before the Committee regarding the current dispute between the Cochiti Pueblo and the Army Corps of Engineers over the high water table and flooding of Cochiti land below Cochiti Dam. I commend the Chairman for calling this hearing to focus on the continuing problem of seepage from Cochiti Dam. This seepage has rendered useless approximately 800 acres of agricultural and grazing lands belonging to Cochiti Pueblo. We must intesify our efforts to come to a resolution of this problem and not spend additional time and money in protracted litigation.

I am encouraged that representatives of the Corps and the Pueblo met in Albuquerque on March 7th to discuss possible solutions to the seepage problem and that they plan to continue meeting on a regular basis. I want to encourage both parties in their efforts to negotiate an out of court settlement and I gladly offer any assistance I can lend in reaching a permanent solution to this problem.

87-538 0 - 88 - 6

Testimony Before Senate Select Committee on Indian Affairs
On Behalf of the Cochiti Pueblo, New Mexico
Mar 15, 1988

By

Ron D. Bliesner
Vice President
Keller-Bliesner Engineering
Logan, Utah 84321

INTRODUCTION

Following the completion of Cochiti dam and the subsequent operation of Cochiti lake as a flood control and recreation facility, lands on the Cochiti Pueblo have experienced a rise in the level of the groundwater to the point that most of the agricultural lands are no longer farmable and many of the fields have standing water as much as a foot deep. The high water table problem has been studied by a number of firms, including our firm, and the consensus of all is that the problem is caused directly by seepage under the dam. Seepage estimates made by the Corps of Engineers at the design phase placed the expected seepage for the initial permanent pool at 2 to 8 cfs, ranging up to 224 to 331 cfs at maximum pool (Lillard, May 1985). Some of this seepage appears in measured outlet channels and drains. Most does not. Due to the nature of the geology, the seepage spreads out over a large area below the dam, creating a large artesian aquifer that forces water to the surface over much of the low lying lands. The larger the quantity of water stored, the higher the water table becomes below the dam and the larger the affected area grows.

AFFECTED AREA

In June of 1987, the Albuquerque District of the Army Corps of Engineers (COE) estimated the affected area of farmland to be 487.75 acres plus approximately 250 acres of bosque type land(COE, Nov. 1987). Figure 1 shows the areas of farmland our firm has determined to be affected to the point of being non-farmable. Our field investigation was conducted in September 1987. The high reservoir elevation has caused expansion of the affected area. We compute the affected area to be 524 acres within the area studied by COE, plus an additional 91 acres in the Peña Blanca area, for a total of 615 acres of farmland. We did not compute the affected Bosque area, but feel the COE estimate is reasonably close. To date, the land where the Pueblo sets has not been affected. Projections would indicate that it is not likely to be affected, especially if a drainage system is installed in the agricultural lands.

DRAINAGE SYSTEM PERFORMANCE

Past attempts by the COE to solve the drainage problem have not been effective. A buried drainage system was installed in 1977 on 17 acres of farmland immediately below the dam. While the water table was lowered, it remains too high to allow the land to be farmed. The drainage system was poorly designed and poorly constructed. The drains are too shallow

and spaced too widely apart to be effective. While using buried drains is a viable and preferred method of solving the problem, the system must be appropriately designed and installed to function well.

RECOMMENDED SOLUTION

In November 1987 the COE completed their Reconnaissance Report on the high groundwater problem on Pueblo de Cochiti lands. In the report, they suggested a number of approaches to solve or mitigate the problem. Of the solutions presented, only one is acceptable, and then, only if appropriately designed. The most viable, least costly solution is the installation of a buried pipe drainage system. However, the system proposed by the COE will not solve the problem. They propose using perforated corrugated metal pipe drains spaced on 230 ft centers. The selection of materials is wrong and the spacing is excessively wide. The system must be designed to keep the water table at least 4 feet below the ground surface on all the agricultural lands. Based on the measured performance of the installed drains and additional field testing completed by our firm, the drain spacing should range from 35 ft to 100 ft, depending on location and soil type. The only economical method of draining the land is to use 4 inch and 6 inch plastic relief drains as shown in Figure 2 with larger diameter plastic collector drains. The preliminary layout for such a system is shown on the attached Plate entitled "Pueblo de Cochiti Proposed Drain System Layout". The estimated cost of this system is $3,710,000 with annual operating costs estimated at $37,100. With the present value of the operating costs included, the total capital requirement is $4,620,805.

RESPONSIBILITY FOR CONSTRUCTION AND MAINTENANCE

Although the above estimate is based on field tests of drain performance, more extensive testing, with construction of test sections of drains, will be required as a part of the final design before accurate cost estimates can be completed. Several unknowns exist that could affect the cost to construct the system such as de-watering during construction and trenching costs in the gravel which underlies most of the agricultural lands. Furthermore, the maintenance of the system is highly dependent upon the quality of design and construction. The system designed by the COE would be very expensive to maintain on a long term basis, requiring eventual replacement of the corrugated metal pipe. With these uncertainties, it is recommended that the COE maintain full responsibility for construction and maintenance, or, a sufficient contingency fund be provided to cover unforeseen costs during construction and maintenance. To determine the required funding would require, at least, the completion of the engineering design which has been funded in the 1988 FY budget. This work should be completed this summer, as a part of the negotiations between the COE and the Cochiti Pueblo, to assure that the solution chosen is functional and the costs are well known.

Given the problems with the performance of the existing drainage system designed and constructed under the supervision of the COE, it is recommended that the Pueblo, with the assistance of a consultant of their

choice, be involved at the design phase and through the construction phase to assure that the design will affect a solution and that the interests of the Cochiti Pueblo are protected.

MONITORING & AVOIDANCE OF FUTURE PROBLEMS

The drainage system discussed above is designed to correct the problems as they exist today. While it appears that the extent of the problem will not materially increase on the agricultural lands in the future, the potential does exist, especially if the wetter than normal trend continues and the reservoir levels are maintained high for an extended period of time. The COE should not be released from responsibility for future drainage problems that may occur that are attributable to seepage from the reservoir. An ongoing monitoring program in key areas should be developed to allow advance notice of any approaching problem. This is particularly essential in the area of the Pueblo. Due to the historical and cultural significance of the Pueblo it is very important to protect this area from any problems caused by high water table. A monitoring program to allow advance warning of impending problems along with a commitment by the COE to quickly resolve any problems before damage occurs is very important.

SUMMARY OF RECOMMENDATIONS

The following points summarize the impact and recommendations for the solution of the high water table on the Cochiti lands:

1. The area affected by seepage from Cochiti Lake sums to 615 acres of agricultural land and approximately 250 acres of bosque land.

2. The preferred solution to the drainage problem is to design and install a buried drainage system consisting of plastic relief and collector drains. The estimated cost of this system is $3,710,000 with estimated annual maintenance costs of $37,100. Present value of the O&M cost brings the total cost to $4,620,805.

3. Due to uncertainties in field conditions and costs, the design work that has been authorized in the FY88 budget should proceed this summer- including detailed soil profiles and test drainage construction. This work should be completed as part of the negotiations that are on-going.

4. Due to uncertainties in design cost and long term maintenance and replacement cost, it is recommended that COE maintain responsibility for the installation, performance and maintenance of the system. Alternatively, a sufficiently large contingency fund should be established to handle uncertainties that may arise both during construction and during long term operation.

5. The COE should maintain responsibility to monitor water table in key areas, especially the Pueblo area, and to remedy any problem that may develop due to seepage from Cochiti Lake.

BIBLIOGRAPHY

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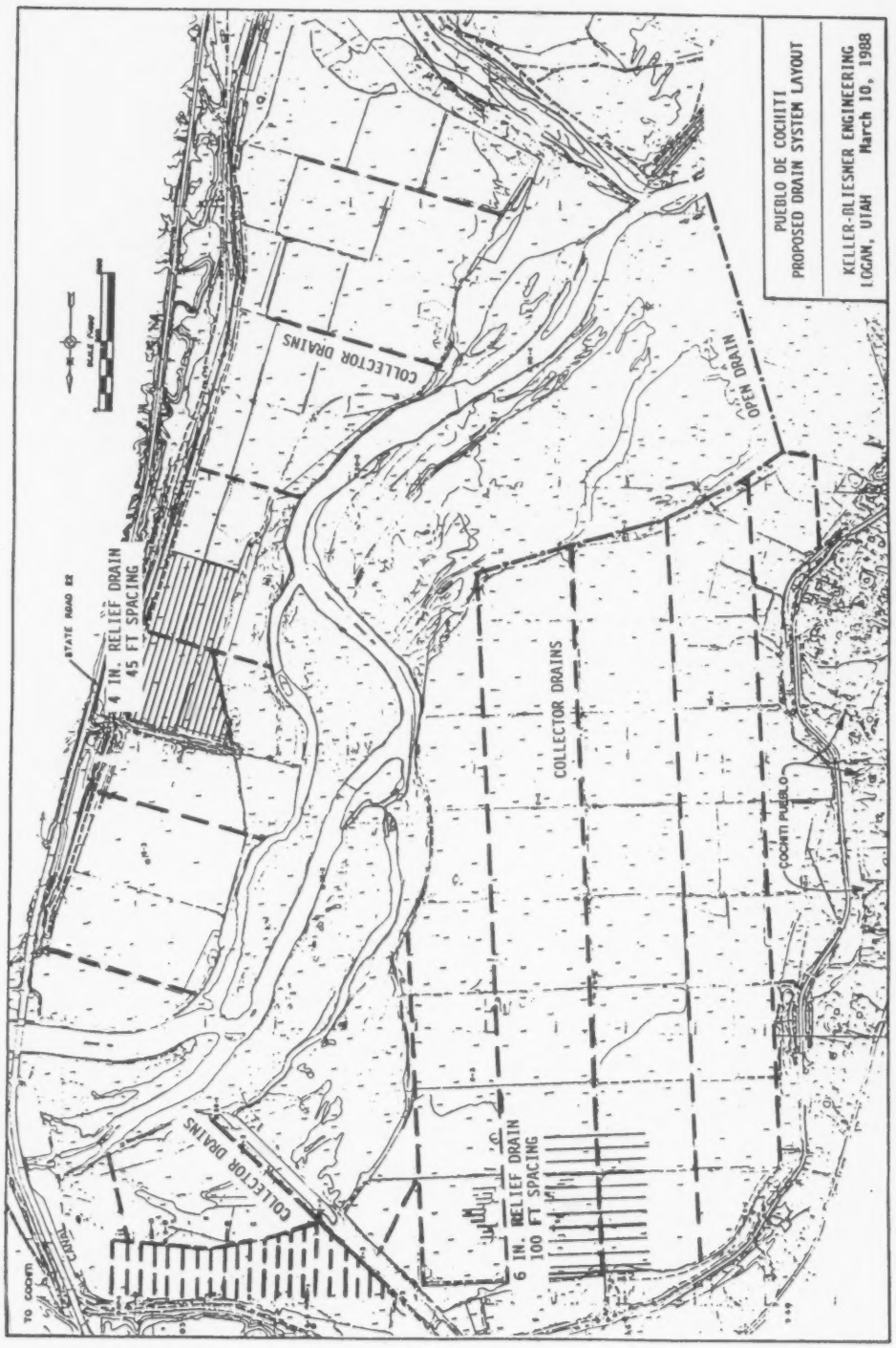
U.S. Army Corps of Engineers, Reconnaissance Report, High Groundwater Problem on Pueblo de Cochiti Lands Below Cochiti Dam, NM, November 1987.


PUEBLO DE COCHITI
PROPOSED DRAIN SYSTEM LAYOUT
KELLER-BLIESNER ENGINEERING
LOGAN, UTAH March 10, 1988
COLLECTOR DRAINS
OPEN DRAIN
4 IN. RELIEF DRAIN
45 FT SPACING
STATE ROAD 22
COLLECTOR DRAINS
COLLECTOR DRAINS
6 IN. RELIEF DRAIN
100 FT SPACING
COCHITI PUEBLO
TO COCHITI

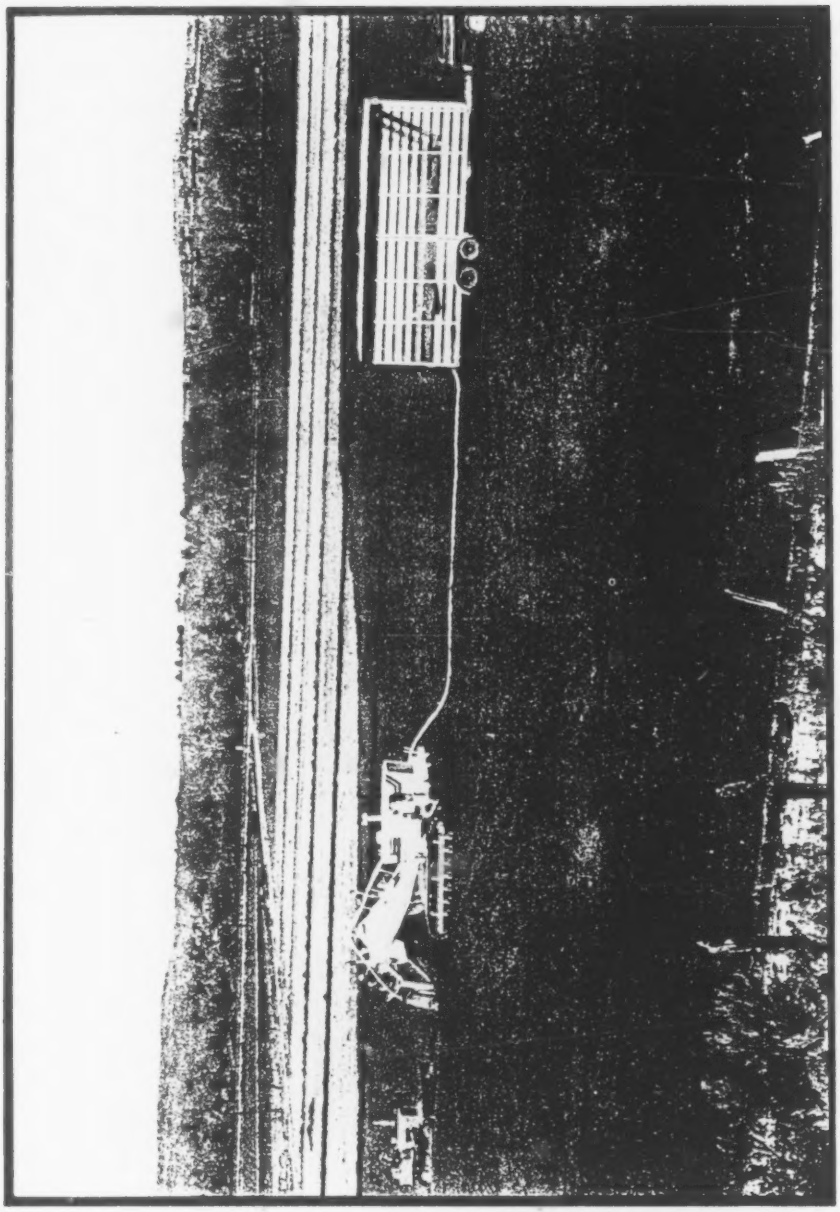


Figure 2. Typical agricultural drain tubing installation.

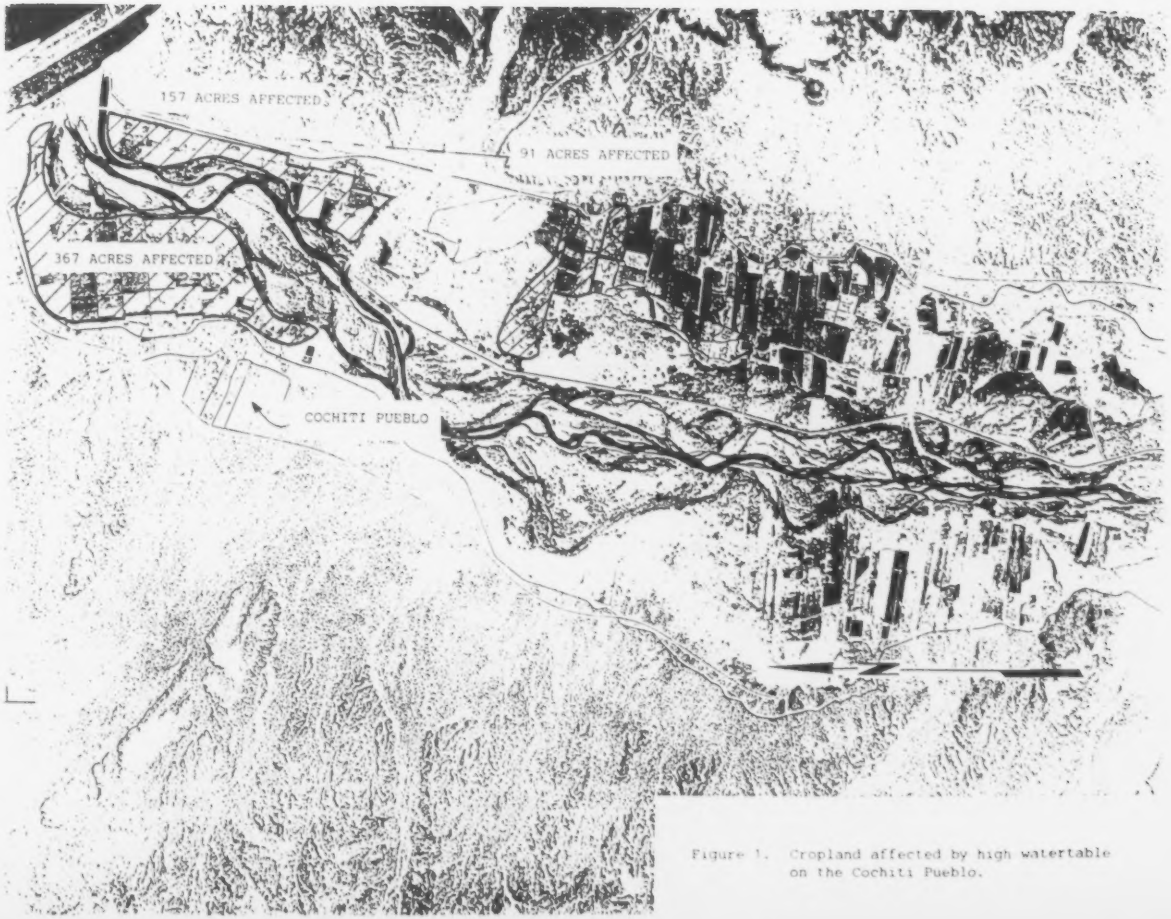


Figure 1. Cropland affected by high watertable on the Cochiti Pueblo.

A SHORT HISTORY OF COCHITI DAM SEEPAGE PROBLEM AND ESTIMATED COSTS AND DAMAGES

The inhabitants of present day Pueblo De Cochiti are descendants of puebloan peoples who have resided in this particular locality for the past one thousand years and farmed the land along the Rio Grande. The land holds a deep religious and sacred relationship with the Cochitis.

Flood control on the Rio Grande River was first authorized by Congress in 1936 and 1944. In the early 1950s, the Corps of Engineers entered upon the lands of the Pueblo for the purpose of making surveys and conducting core drilling for a dam site at its present location. The Flood Control Act of July 14, 1960, Public Law 86-645, 86th Congress, Second Session, authorized the construction of the Cochiti Dam for flood and sediment control on the main stem of the Rio Grande.

In March, 1964, the 88th Congress authorized the Secretary of Interior to make water available for a permanent pool for fish, wildlife and recreational purposes at Cochiti Lake. The Act authorized approximately 50,000 acre feet of water for initial filling of the permanent pool of 1,240 surface acres at Cochiti Lake and sufficient water annually to offset evaporation from this pool. (Public Law 88-293, 88th Congress)

In the early 1960s, the Corps of Engineers began negotiating with the Pueblo De Cochiti for their land to be used for the Cochiti Dam and Lake. Parties explored the acquisition of other land by the Corps of Engineers to replace

the land to be used by the Corps; however, the Cochiti people were reluctant to give up lands which they had owned and had been using for centuries. However, suitable lands were not available in the immediate area. The Corps of Engineers was advised that the Pueblo would not give up fee title to their lands. The Corps threatened that if negotiations for a comprehensive easement failed and if condemnation became necessary, the Corps would take the land in fee simple title rather than as an easement interest. As a result of this threat by the Corps., the Cochitis, believing that the land would be taken from them forever, agreed to negotiate an easement and expressed their willingness to cooperate with the United States and the State of New Mexico in providing flood protection and would consent to the granting of an easement for the construction, operation, and maintenance of the dam and the lake; provided, that the Cochitis retain all rights, privileges and title and that they be paid a fair value for the easement. This cooperation was indicated in spite of the fact that the proposed project would occupy and flood a large portion of the land which included sacred areas of great spiritual, moral, and emotional significance to the members of the Pueblo.

The Corps advised the Cochitis in February, 1965, that on the basis of a carefully prepared formal appraisal report the sum of $153,350.00 was a fair compensation. However, the Corps refused to provide a copy of the appraisal claiming

their regulations prevented delivery and that the Corps was under obligation to the United States Attorney not to divulge information considered privileged, as long as the possibility of condemnation existed.

Eventually, on November 16, 1965, a Memorandum of Understanding was made and entered into between the Department of the Army, Corps of Engineers, and the Pueblo of Cochiti. The easement granted to the Corps covered approximately 5,000 acres of Cochiti land. For this perpetual easement, the Cochitis were paid $145,200.00. Following the easement agreement, the Corps of Engineers commenced construction; and, some ten years later, in 1975, the dam gates were closed and a permanent recreational pool, known as Cochiti Lake, was created.

Following the formation of the permanent pool, a series of shallow ponds and zones of saturated soil appeared downstream from the dam on the Pueblo De Cochiti lands shortly after the project became operational. In August, 1976, the Corps of Engineers installed several observation wells downstream of the dam to monitor the seepage flow beneath the dam. In 1977, a sub-drain system was installed immediately downstream of the dam. This sub-drain system was initially installed as a surface ditch, but because it was dangerous to the health and safety of the Cochitis, it was subsequently changed to a sub-drain system. The purpose of this sub-drain system was to intercept seepage flows prior to entering the

Pueblo De Cochiti lands and to provide the Corps with additional information on the amount of seepage occurring in the foundation of the dam.

In 1979, the Corps of Engineers submitted Design Memorandum No. 16 which recommended construction of an underground sub-drain system in a 17-acre field immediately downstream of the dam. This system was eventually installed in 1980. As a result of damages to this land and crops that could have been grown on this 17-acre tract, there was a payment for crop loss and other damages to the land made by the Corps of Engineers to the Cochiti farmers who had a right to use this portion of the Pueblo lands. The amount of payment was $11,225.00 for a four year crop loss, 1976 through 1980. This sub-drain system in the beginning did drain the water sufficiently so that the 17 acres was usable; however, the drain system encountered problems resulting from the lack of maintenance work which eventually caused the lines to be blocked, causing the blockage of the drainage. These problems have not been corrected due to an alleged disagreement between the Corps of Engineers and the Cochiti Pueblo as to the maintenance responsibility.

In any event, this drainage system and the prior drainage system installed in 1977, did not prevent the seepage water from continuing downstream and appearing in various portions of the Cochitis' farmland further downstream. The Corps of Engineers, in April of 1980, contracted with G. Hydrology

Associates, Inc., a ground water consultant, to determine the source or sources of the seepage problems. This report concluded that the rise in the ground water table immediately downstream of the dam was attributed to seepage through the foundation of the dam. The report also indicated that high ground water problems further downstream of the dam were also a result of foundation seepage and to some degree seepage from the irrigation canals that deliver water to the downstream farmlands. The canal seepage, the report indicated, was a result of the dam removing the silt from the water, releasing clear water, and the canals were unable to prevent the clear water from seeping laterally out of the canals. The canals, prior to the dam construction, formed their own cement liner because of the amount of silt in the water. When the silt was removed, the clear water removed the silt lining along the canal embankments.

In June, 1984, another separate study on the ground water problems at Pena Blanca was completed for the Middle Rio Grande Conservancy District. This report indicated that the Pena Blanca seepage may be caused by a small pool of water in the Santa Fe River, seepage from the Cochiti main canal, and poor soil drainage in the affected areas.

Then, in November, 1984, the Corps of Engineers initiated action to prepare a report discussing the seepage related problems below Cochiti Dam. In April, 1985, the Corps submitted a letter report for review entitled "Reconnaissance

Report on Seepage Deficiency at Cochiti Lake, New Mexico," which report considered several alternatives for remedial action. This report further recommended the installation of more observation wells.

From 1976 forward, the Bureau of Indian Affairs had located approximately 50 observation wells on the Cochiti farmland to monitor the ground water levels. These wells were monitored on a monthly basis and have been so monitored to the present time. Information gathered from these BIA monitoring wells were furnished to the Corps on a monthly and annual basis.

Even though the Cochitis had complained to the Corps of Engineers concerning the seepage problem, the Corps, itself, refused to acknowledge the extent of the seepage and the cause of the seepage coming from the dam. As a result of the foregoing, the Cochitis filed a lawsuit on November 29, 1985. As a result of the filing of the lawsuit, the Corps abandoned any further effort to resolve the problem, claiming that the lawsuit prevented them from doing so.

Of course, the Corps had essentially done nothing to recognize the problem and resolve it prior to that time. This was in spite of the fact that the Corps had acknowledged, as early as 1976, that the ground water problem on the Cochiti lands was a direct result of the impoundment of water behind the dam creating a hydrostatic pressure, forcing the water down through the alluvial deposits below the dam, the water

then going underneath the dam foundations and footings and reappearing on the other side of the dam.

All of the foregoing possibilities were known to the Corps of Engineers when they designed the dam but which geological and engineering information was never told to the Cochitis. In fact, the Corps of Engineers, in a letter dated June 27, 1976, in discussing the seepage problem, stated: "Investigations (by the Corps) will be made to determine the cause of the problem, and if the problem is caused by Cochiti Dam, it will be corrected." That correction has yet to occur.

On July 25, 1985, representatives of the Cochitis, with their legal counsel, met with the Corps of Engineers at the Albuquerque Office to discuss the seepage problem further and, at that particular meeting, the Cochitis were informed that the Corps recognized a particular area that was impacted by seepage from the dam. This area consisted of approximately one-fourth of the actual acreage affected by the ground water problem. However, the Corps refused to recognize any of the other lands not included in this particular area which was just immediately below the dam and basically North of the existing Pueblo on the West side of the Rio Grande.

At this meeting, the Corps outlined an anticipated schedule to fix the portion of the problem for which it acknowledged responsibility, subject to funding. This schedule was that the Corps would request study funds and would receive the study funds in October of 1986; then

complete a general design memorandum in April of 1987; then complete a feature design memorandum in December of 1987; then complete contract documents in June of 1988, and start construction in September of 1988. Essentially, two reasons prevented this proposed schedule from occurring. The first reason, was the refusal of the Corps of Engineers to recognize that the seepage problem was at least five times greater as far as affected acreage than what they had indicated it to be; and, two, their alleged reluctance to do anything while the lawsuit was pending. Although the Corps had been involved with the problem since 1976, it had not resolved the problem, even though it indicated that it would do so if the seepage was being caused by the dam itself. Everybody but the Corps of Engineers knew that the water seepage problem was being caused by the dam.

It was not until the Federal District Court of New Mexico, per Judge Conway in July, 1986, denied the government's motion to dismiss the lawsuit and Senator Inouye's trip to the Cochiti Pueblo in September, 1987, and the subsequent push by the New Mexico Congressional Delegation and the Select Committee on Indian Affairs to obtain an appropriation to fund a further study and develop a design to resolve the problem, were there any true, positive steps taken to resolve the seepage problem.

In November, 1986, the Corps of Engineers first offered to negotiate a settlement with the Pueblo, which negotiations

have taken place sporadically and without great progress until recently.

In November, 1987, the Corps prepared a "Reconnaissance Report, High Ground Water Problem on the Pueblo De Cochiti Lands, Below Cochiti Dam, New Mexico." This reconnaissance report by the Corps recognized that the ground water problems below the dam were caused by seepage from the dam. In this particular report, the Corps recognizes that the amount of acreage affected is approximately 480 acres of farmland. This report then goes on to discuss about 15 various types of alternative resolutions ranging in cost from zero to $90,000,00 (see Recon. Report, Table 7-1) to cure the seepage problem.

The Pueblo, through its experts, has determined that there are approximately 615 acres of affected land and that the least cost, and the preferred option, to resolve the problem is a buried collector drain system. This system presently is projected to cost $4,600,000.00, plus/minus.

The Cochitis' experts have determined that, as a result of the seepage, damages and the crop losses through 1986 and projected through 1991, and losses associated with replacement of irrigation canals, farm access roads, and fencing, etc., calculated in 1987 dollars to be approximately $2.7 million.

Review of U.S. Army Corps of Engineers Report entitled:

Reconnaissance Report

High Ground Water Problem on Pueblo de Cochiti Lands

Below Cochiti Dam, New Mexico

Prepared for

Pueblo de Cochiti
Cochiti, New Mexico

Prepared by

Keller-Bliesner Engineering
Logan, Utah

February 17, 1988

Review of U.S. Army Corps of Engineers Report entitled:
Reconnaissance Report
High Ground Water Problem on Pueblo de Cochiti Lands
Below Cochiti Dam, New Mexico

Prepared by
Keller-Bliesner Engineering
Logan, Utah

February 17, 1988

INTRODUCTION

We have reviewed the report prepared by the U.S. Army Corp of Engineers (COE) entitled "High Ground Water Problem on Pueblo de Cochiti Lands Below Cochiti Dam, New Mexico". Data gathered under separate contract in preparation for determining a solution to the high water table problems have been used in this report as a basis for review of the solutions presented by the Corp of Engineers. Extensive testing of the performance of existing relief drains, tests of soil permeability, drainage volume computations and detailed analyses of water profiles have been performed as a part of that contract.

The solutions reported in the above referenced reconnaissance report are not materially different than those reported in the March 1987 report by Tierra Engineering Consultants, Inc. In some cases, the costs have been updated and present value of operation and maintenance added. Otherwise, the solutions are the same, and the deficiencies in the solutions noted in our July review of the Tierra report have not been addressed.

Following is a discussion of the findings of the report, organized by report section.

ANALYSIS

I. Introduction - no comment.

II. Purpose of this Document.

Paragraphs 2-01 & 2-02 - no comment.

Paragraph 2-03. The Study Area. The cropped acreage computed by the Corps to have been affected by high water table is 487.75 acres, 328.35 acres on the west side of the river and 159.4 acres on the east side of the river. Our analysis of water surface profiles and irrigable area show that there is a total irrigable area (not all in fields presently) North of the Santa Fe River of about 553 acres (380 acres west and 173 acres east of the Rio Grande). Of this area a total of 524 acres (367 acres on the west and 157 acres on the east

of the Rio Grande) would have restricted crop potential due to high water table as shown on the attached plate. In addition there are about 370 acres of irrigable land south of the Santa Fe River below the Cochiti Main canal of which 91 acres have been affected by high water table. This last area apparently is outside the scope of the reconnaissance report and additional water table data is being collected to determine the cause of the problem for this area. We have not studied this area in detail or determined a cost to drain this area since we were matching the scope of the original study by Tierra Engineering. However, the land is affected, and should be considered in the overall solution.

III. Background - no comment.

IV. Problem Identification

The COE acknowledges that the main cause of the high water table on Pueblo de Cochiti lands is seepage from Cochiti Lake, with some contribution from the canals. They also note the response of the water table on the agricultural lands to the change in reservoir surface elevation. One thing that has limited the rise of the water table on the agricultural lands, is that a large portion of the lands west of the river experienced standing water by 1981. Therefore, the water table cannot rise materially above this level on these lands. The perimeters have shown a somewhat greater increase in water level. In fact, the mound that appears east of the River along Canada de Cochiti has grown significantly since 1986. Although data is not available for observation wells during this time, water has appeared at the surface of fields adjacent to the Cochiti main canal much further south than previously. It is believed that this is due to the increased pool in the Canada de Cochiti and Santa Fe River areas during the last year as the flood waters were stored. The changes on the west side have not been as dramatic, other than increases in observed spring flows and the appearance of springs not previously noted to the west of the Sile Canal.

We concur with the basic conclusion of this report, that the high water table has caused the loss of production on the bulk of the cropable acreage below the Sile and Cochiti Main Canals on the Pueblo. The only disagreement is on the acreage. COE states the area at 487.75 acres. We compute 524 acres north of the Santa Fe River and 91 acres south.

V. Alternatives Evaluation

5-03. Fee Purchase of Affected Lands. We have not reviewed the computed value of the land. The stated value of $2,626,000 is for 487.75 acres of farm land and approximately 250 acres of existing bosque land. We compute 524 acres of farm land as being affected north of the Santa Fe River and 91 acres south. At the same value per acre, the value of the affected lands would be $3,311,000.

Since we have not reviewed their assumed value, we cannot state that this is the value of the land. An independent appraisal should be made if the value of the land becomes important in negotiations. The other observation is that this is not a legal option.

5-05. Acquisition of Flowage Easement for Affected Area. The discussion here states "that during dry years when flood control pools are not high, the high groundwater problem would decrease in scope and at least some portion of the affected land could be returned to production for those years." This is not a viable option. The permanent pool elevation is sufficient to maintain problematic water table elevations on essentially all the 524 acres indicated. Due to lag in response time, it may take more than a year for the levels to decrease significantly after a high flood stage. Even then, the reduction in affected area is very small (non-existent on the west side of the Rio Grande). In addition, it is not practical to maintain ditches, fields and equipment in the off chance that you may be able to farm them once in a while. The loss of use should be computed on the full acreage. In addition, the cost of mosquito abatement and other environmental issues should be included.

Based on the crop budgets and average crop mix reported by Southwest Research & Development Co. in a report entitled "Economic Evaluation of Damages from the Loss of Crops, Roads, Canals and Fences Resulting from a High Water Table on Irrigated lands, Pueblo de Cochiti", the annual net return per acre would be $225.98. For 524 acres, the annual lost revenue would be $118,414. The present value of this annual loss over 100 years using a 4% discount rate (inflation free since no inflation in crop returns is assumed) would be $2,901,735. With the inclusion of the 91 acres south of the Santa Fe River, the present value of the losses would be $3,405,622 for crop land only. To this we add the lost grazing in the bosque areas, listed by SRD as $3,496 per year, giving a present value of $85,669 for a total loss of revenue of $3,491,291 (net present value). To this, environmental costs such as mosquito control would have to be added. Therefore, COE understated the cost for a flood easement by over $1,390,000.

5-01 Operational Changes for Cochiti Dam. We concur that the high water table problem would not be corrected by eliminating the permanent pool. However, the degree of the problem would be much less. Under this scenario, it may be possible to farm some portion of the lands during dry years. However, the problem would not be eliminated, and, given the stated recreational benefits of over $5,000,000 per year, other solutions appear more economical. Therefore, operational changes do not provide a total solution, are not politically viable and are not economical.

5-11 Relocation of Farmland.

The location selected appears to be an acceptable site, although the arability of the soils has not been determined. The system designed

is not state of the art. The lands in this location are quite sandy, and somewhat sloping. Land grading into terraces with surface irrigation, especially when pump lifts are involved, is not the most cost effective system. Making 3 ft cuts and fills on terraces is not practical and would seriously affect production for several years. Maintenance of such high terraces is also difficult.

For the solution proposed, the costs do not include lining of any of the ditches. Nearly all the present ditches are concrete lined. If this alternative is the preferred method, cost of lining the ditches must be included, which would add significantly to the cost.

The efficiencies assumed for all unlined ditches and surface irrigation on sandy loam soils are too high. It is expected that the pumping requirement would be closer to 4 acre feet per acre than 3 acre feet per acre.

The capacity of the pump is too low to meet the peak demand of the crops. The capacity appears to be about 5.3 gpm per acre (assuming 150 hp, 140 ft T.D.H. and 600 acres irrigated). This area requires 10 gpm for surface irrigation. With unlined ditches, the required capacity would be closer to 12 gpm per acre, requiring over 300 hp.

Constructing the long pipeline has no merit unless head from the dam is going to be utilized. PVC pipe would be preferred due to longevity and better hydraulic characteristics.

A better solution would be center pivot sprinklers. The system would be less costly to build by half and would be easier to develop and operate than the system proposed. Given the improved efficiency and required operating pressure, the energy cost for the pivot system would be roughly the same as for the surface irrigation option with unlined ditches.

Although the costs shown are inadequate for the system design proposed, using center pivot irrigation would allow construction and operation of the system for the costs stated. The questions remaining are the arability of the land and the acceptability to the Pueblo members. Other alternatives appear less costly and would allow restoration of the land.

5-15. Raising Farmlands. This is not a viable option. Given the water table gradients and the volume of water flowing through the system, raising the land by 4 ft would almost certainly not affect a complete solution. The costs, although probably understated in the COE report due to omission of restoration of the irrigation system, are prohibitively high, even if the problems could be corrected in this manner.

5-18. Sealing the Reservoir. This is not a complete solution and is extremely expensive. The results would not be acceptable.

5-20. Grouting of the Embankment Foundation. It is not technologically nor economically feasible to attempt to eliminate the high groundwater problem by grouting the embankment foundation. This is not a viable option.

5-27. Installation of Various Types of Cutoff Trenches in the Embankment Foundation. We concur with the COE presentation. This is not a complete nor viable solution.

5-32. Sealing or Lining the Canals. We concur in the conclusion. The canal seepage is insignificant in comparison to the reservoir seepage. The canal seepage existed prior to the dam without damage to the agricultural lands. This should not be considered a part of the solution.

5-33. Installation of Wells. The design allows the water table to come too close to the surface. The minimum depth to water should be maintained at 4.0 ft not 3.0 ft. Given the uncertainties in permeability and artesian head, the estimates concerning well performance could be significantly in error. Since this option is very expensive, subject to vandalism and requires very high operation and maintenance costs, it should not be considered as a preferred option.

5-37. Installation of Drainage Ditches in the Affected Area. The design presented will not adequately lower the water table. The design assumes a 3.0 ft minimum depth to water when 4.0 ft is required. Also, the spacing of 460 ft computed by COE is much too wide. Based on extensive testing of the existing drainage system, on-site pump tests, and slot-trench tests, the average drain spacing on the west side of the Rio Grande could not exceed 100 ft and the required spacing on the east side is computed to be 35 ft for adequate water table control. The cost shown is underestimated by a factor of nearly 5. When completed, nearly all the land would be consumed in open drains. This is not a viable alternative.

5-40. Buried Drainage Collector Systems in the Affected Area. Although this is the preferred alternative, the design presented in the COE report is inadequate. The actual spacing requirements would be as stated in the preceding paragraph. The COE report states that "an examination of the system installed on the 17 acre tract in 1977 indicates that the system is generally working well and water levels have been controlled." Our investigation shows that the 17 acre system is not functioning adequately. The system is installed with insufficient depth in many areas and the filter material is not well designed. Water surface profiles were measured across the drain at five locations to determine the effectiveness of the system. Based on the measured profiles, the required drain spacing in this area would be 100 ft assuming a 6 ft drain depth. Presently, the water table rises to within a few inches of the surface in two locations of the field and is less that 2 ft deep

over much of the area. The system is inadequate. Since it appears that the design of the system for the remaining acreage is based on the assumptions used in this design, we would conclude that the solution put forward is inadequate.

A properly designed system would use plastic drain tubing ranging in size from 4 inch to 24 inch. For the most part, the relief drain system would be 6 inch on the west side and 4 inch on the east side. These relief drains would be on 100 ft and 35 ft spacings respectively. Water would be collected from the relief drains into buried collector drains ranging in size from 8 inch to 24 inch, depending on the area drained and the volume of water removed. On the west side, one open collector drain would be used for the collector drains to empty into. The estimated cost of the system for the 524 acres shown on the attached map would be $3,121,000. Using the same cost per acre, the cost to drain the 91 acres south of the Santa Fe River would be $589,000, for a total cost of $3,710,000. Operation and maintenance costs are low for this type system, requiring maintenance of drain outlets, manholes, open ditch and occasional pipeline repair. The average operation and maintenance cost is estimated at 1% of the capital cost or $37,100 per year. The present value of this maintenance (inflation free discount rate of 4%) is $910,805 for a total net present value for this option of $4,620,805. This is the preferred option to remedy the problem.

5-45. Combination of the above Alternatives. We concur with the general conclusions of this section. The only viable combination is that of open ditch drains and buried collectors. The only acceptable combination of these two is the one stated above.

5-43. Reclamation. We concur with the conclusion that salt has not become a problem yet, and that any salt accumulation would be easily leached. We completed spot measurements of salinity and found no significant problems. However, COE did not include any reclamation cost to re-level lands or repair concrete ditches which have deteriorated due to high water table conditions. We have included $85,000 in the cost estimate for the drainage system to cover these reclamation costs. We would expect the costs to be at least this high, and possibly higher, depending on the condition of the concrete lining by the time the project is constructed.

CONCLUSIONS

The COE has underestimated the affected area. Within the study area, the affected area is 524 acres. The total affected area is 615 acres. The estimated value of the affected land computed by the COE is, therefore too low. The analysis of the required flood easement cost is also too low.

Of all the alternatives examined for correction of the problem, only two have merit and then only if the designs are correctly executed.

The designs presented by COE are not adequate. It would be possible to re-locate the irrigated land for the cost stated in the reconnaissance report. However, the design shown is inappropriate and would require changing. Also, this is not the least cost option.

The least cost and preferred option is a buried collector drain system. Again, the COE design would not solve the problem. The appropriate design would cost $4,620,805, including present value of the operation and maintenance costs. Further work required to verify this cost and design approach include completion of artesian head tests. During final engineering design, sample drain construction should be performed to determine actual performance and construction problems.

PUEBLO de COCHITI
RECEIVED
JAN 05 1987
TRIBAL OFFICE
COCHITI, N. M.

STATE OF TEXAS
RIO GRANDE COMPACT COMMISSION
EL PASO

JESSE B. GILMER
COMMISSIONER

December 31, 1986

Honorable Sam Arquero
Governor, Cochiti Pueblo
P.O. Box 70
Cochiti, New Mexico 87041

Dear Governor Arquero:

I am sending you a copy of a letter I have received from Lieutenant General Heiberg, Chief of the Corps of Engineers in Washington, D.C.

I am very much encouraged by the position that the General takes with reference to our problem at Cochiti Reservoir and below. I think the commitment the General made to you as Governor of the Cochiti Pueblo is a very important step in the right direction and it opens wider the gate where all of us can enter to negotiate together as gentlemen in an effort to find a resolution to the problem.

The General says without question, "It is in everyone's interest to find that resolution."

Without trying to meddle in your business, I think it is very important and quite timely to proceed with your negotiations with the Corps to try to bring this thing to a conclusion at the earliest date possible.

The most important single interest I have on the river at this time is seeing an agreement satisfactory to you and the Corps of Engineers with respect to handling our problems at Cochiti and below. I certainly offer my services to you or to the Corps or to both if I can be of any assistance to either of you in this matter.

Please feel free to call me at any time, as I am only five or six hours away if you need me.

My best personal wishes to you and your family for a happy and prosperous New Year and certainly to you as Governor of the Cochiti Pueblo.

Sincerely yours,

JESSE B. GILMER

JBG/tlt
Enclosure

P.O. BOX ~~12068~~ 79913 5812 CROMO DRIVE SUITE 105 AREA CODE 915 OFFICE 581-1181 RESIDENCE 584-6738
79985

PUEBLO DE COCHITI - SUMMARY OF CLAIMS vs. CORPS OF ENGINEERS

NAME OF FARMER	1976	1977	1978
SILVIANO QUINTANA	$12,520.00	$19,157.50	$22,757.50
OCTAVIO SUINA	-	-	750.00
DELFIN QUINTANA	-	-	4,687.50
GUADALUPE ORTIZ	-	581.25	2,325.00
JOE A. QUINTANA	25.00	25.00	-
ARNOLD HERRERA	-	750.00	750.00
ONOFRE TRUJILLO	900.00	1,200.00	1,500.00
NATE PECOS & PAUL TRUJILLO	-	19,350.00	21,738.72
WILLIAM MARTIN	2,829.32	2,876.07	7,094.82
JOSEPH U. QUINTANA	2,250.00	2,250.00	2,250.00
SAM ARQUERO	2,130.00	4,473.75	4,848.75
ANDREW AHSONA	-	-	6,343.75
ERNEST SUINA	-	-	4,012.50
DANIEL CHELAN	-	-	360.00
TOTAL	$20,654.32	$50,663.57	$79,418.54

EXHIBIT "A"

RESOLUTION

At a duly called meeting of the Pueblo de Cochiti Council held on the 11 day of APRIL, 1980, the following Resolution was adopted.

WHEREAS, individual Cochiti farmers have suffered damages for the years 1976, 1977 and 1978, caused by the rise in the water table under lands farmed by them, such rise in the water table being the result of seepage from Cochiti Dam, a Corps of Engineers Project; and

WHEREAS, claims for the calendar year 1979 and subsequent years and for damage to land have been reserved for future filing; and

WHEREAS, the said farmers have authorized the Pueblo de Cochiti to file such consolidated claims on their behalf, against the Corps of Engineers, for such damage; and

WHEREAS, the consolidated claims have been presented to the Pueblo de Cochiti Council and the Council approves the same, for submission to the Corps of Engineers;

NOW, THEREFORE, BE IT RESOLVED that the Governor of the Pueblo de Cochiti be and he is hereby authorized and directed to file the said consolidated claims with the Albuquerque District, Corps of Engineers.

GOVERNOR

ATTEST:

SECRETARY

CERTIFICATION

I hereby certify that the foregoing Resolution was duly adopted at a meeting of the Pueblo de Cochiti Council held on the 11 day of APRIL, 1980, at which a quorum was present, 31 voting for and 0 opposed.

GOVERNOR

ATTEST:

SECRETARY

EXHIBIT "C"

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

Cochiti - CE

SWACC

25 January 1979

Philip R. Ashby, esq.
Ashby, Rose and Sholer, P.A.
Attorneys at Law
618 Manzano, N.E.
Albuquerque, New Mexico 87110

Dear Phil:

Inclosed is a copy of Section 213 of P.L. 91-611, the Flood Control Act of 1970. This section is the one which authorized the Chief of Engineers to develop a solution to the seepage and drainage problem in the vicinity of the town of Niobrara, Nebraska as related to the operation of Gavins Point Dam. That is the section referred to in Colonel Blair's earlier letter to you.

We have not received the legislative history as yet and are not prepared to say whether the problems are similar to those Cochiti Pueblo are experiencing. However, hopefully we will have some further information on this matter prior to our anticipated meeting with the Pueblo officials and you during the week of February 12.

Colonel Roth is most interested in meeting with the Pueblo and you concerning the above problem as well as the downstream fisheries problem as soon as a mutual time can be arranged.

Sincerely yours,

THOMAS O. OLSON
Assistant District Counsel

1 Incl
As stated

Flood Control Act of 1970

in lieu thereof the following: "five Assistant Secretaries", and by adding at the end thereof the following: "One of the Assistant Secretaries shall be the Assistant Secretary of the Army for Civil Works. He shall have as his principal duty the overall supervision of the functions of the Department of the Army relating to programs for conservation and development of the national water resources including flood control, navigation, shore protection, and related purposes."

(b) Paragraph (15) of section 5315 of title 5, United States Code,[47] is amended by striking out "(4)" and inserting in lieu thereof "(5)".

Sec. 212. The Secretary of the Army, acting through the Chief of Engineers, is authorized, in the interests of flood control and related purposes, to remove logjams in the lower Guadalupe River, Texas. Prior to the undertaking of the work authorized by this section, appropriate non-Federal interests shall agree to furnish without cost to the United States lands, easements, and rights-of-way necessary for the work, to hold and save the United States free from damages due to the work and to perform all such work thereafter.

Sec. 213. The Secretary of the Army, acting through the Chief of Engineers, is authorized to resolve the seepage and drainage problem in the vicinity of the town of Niobrara, Nebraska, that may be related to operation of Gavins Point Dam and Lewis and Clark Lake project, Nebraska and South Dakota, subject to a determination by the Chief of Engineers with the approval of the Secretary of the Army, of the most feasible solution thereto. There is authorized to be appropriated to the Secretary not to exceed $7,800,000, to carry out this section.

Sec. 214. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to perform dredging operations in the Coal River Basin, West Virginia, for the purpose of improving the channel capacities in the interest of flood control. Such operations shall be performed on an interim basis pending completion of the Kanawha River Basin comprehensive study being undertaken by Federal and State agencies and implementation of the pertinent study recommendations by the Secretary of the Army. Appropriate non-Federal public interest as determined by the Secretary of the Army, acting through the Chief of Engineers, shall, prior to initiation of dredging operations, agree to furnish the necessary lands, disposal areas, easements, and rights-of-way, and hold and save the United States free from damages due to the dredging operations.

Sec. 215. The project for flood protection on the Klamath River at and in the vicinity of Klamath, California, authorized by the Flood Control Act of 1966 (80 Stat. 1205), is hereby modified to require the Secretary of the Army, acting through the Chief of Engineers, to provide, as an essential part of the project, bank pro-

47. 5 U.S.C.A. § 5315(15).

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

SWADD

6 August 1979

Philip R. Ashby, esq.
Ashby, Rose and Sholer, P.A.
Attorneys-at-Law
618 Manzano, N.E.
Albuquerque, New Mexico 87110

Dear Mr. Ashby:

Pursuant to discussions between Albuquerque District personnel, the Cochiti Council, and you on 31 July 1979, the following schedule is provided for the construction of a subdrain system on 17 acres of Cochiti Pueblo land, below Cochiti Dam.

3 August 1979	- Publish advance notice to prospective bidders.
14 August 1979	- Advertise for bids.
17 August 1979	- Cochiti Council meeting, to finalize Cochiti comments on proposed project, sign an approval of the project, and execute necessary right-of-entry for construction activities.
20 August 1979	- Deliver aforementioned document to Corps.
5 September 1979	- Show project to prospective bidders.
12 September 1979	- Open bids.
30 September 1979	(at the latest) - Award contract.
1 March 1978	- Contract completion date.

SWADD 6 August 1979
Philip R. Ashby, esq.

Funds are available this fiscal year for this work, hence the tight schedule. It is very important that the Council indicate its approval or disapproval of the project and if it approves, sign the necessary real estate instruments by 20 August 1979. If the project is not awarded by 30 September 1979, FY-79 funds will no longer be available. FY-80 funding will be difficult to obtain and the construction time required to complete the work will very likely preclude or limit the agricultural use of the land in 1980. I have an appreciation for the special effort which will be required of you and the Council; however, moving quickly on these matters should ensure that the 17 acres of wet lands will be available for crop production next irrigation season.

Attached is the requisite real estate instrument. If further assistance or advice is desired, please contact me.

Sincerely,

LARRY A. BLAIR
Lieutenant Colonel, CE
Deputy District Engineer

1 Incl
As stated

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103-1580

REPLY TO
ATTENTION OF

Engineering and Planning Division
Design Branch

The Honorable John Bowannie
Governor, Cochiti Pueblo
P.O. Box 70
Cochiti, New Mexico 87041

Dear Governor Bowannie:

I am pleased that you were able to meet with Secretary Page, Major General Hatch, Brigadier General Lee, and others during our trip to Cochiti on 21 January 1988. I am sure that the tour of the Cochiti fields by these gentlemen will enhance the understanding of the high ground water problem effecting the Pueblo.

As discussed during the meeting, I am forwarding to you an advance, unapproved copy of the "Reconnaissance Report, High Ground Water Problem on Pueblo de Cochiti Lands, Below Cochiti Dam, NM." This will allow you to begin your review while the approval process is still underway. The report is currently under review in the Office of the Chief of Engineers in Washington D.C. I have been informed that when the review of the report is completed, the Chief of Engineers office will furnish the Albuquerque District with comments on the report and guidelines for proceeding with the negotiation as called for in the FY 1988 appropriation bill.

I must caution you that the contents of the report may be modified as a result of the review by higher authority. When I have the results of the review, I will contact you so we can continue the negotiations on a plan to solve the problem.

Sincerely,

Kent R. Gonser

Kent R. Gonser
LTC, CE
District Engineer

Enclosure

IN REPLY REFER TO:

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
SOUTHERN PUEBLOS AGENCY
P.O. BOX 1667
1000 INDIAN SCHOOL ROAD, N.W.
ALBUQUERQUE, NEW MEXICO 87103

Land Operations
SMC

COCHITI - [redacted]
LCE

June 26, 1979

Mr. Jasper Coombes, Chief
Engineering Division
Department of the Army
Corps of Engineers
P. O. Box 1580
Albuquerque, New Mexico 87103

Dear Mr. Coombes:

Enclosed are copies of observation well measurements taken at Cochiti Pueblo by the Bureau of Indian Affairs. This report indicates monthly measurements taken during the months of January thru June 1979. On the June 1979 recordings, Wells 16, 53 and 54 were probably affected by recent irrigations.

Please note that eight additional wells were established on May 18, 1979. A map showing these new locations will be sent you in the very near future.

Sincerely yours,

Mark J. Stevens
ACTING Superintendent

Enclosures

cc: Phil Ashby, Attorney
Governor, Pueblo of Cochiti

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

COCHITI PUEBLO WATERTABLE STUDY
YEAR 1979
TABLE INDICATES INCHES TO WATER

DATE OF STUDY		26	26	26	17	23	21						
Well No.	Total Depth	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	65"	on Surface	on Surface	on Surface	on Surface	on Surface	on Surface						
2	53"	on Surface	on Surface	on Surface	on Surface	on Surface	on Surface						
3	39"	on Surface	on Surface	on Surface	on Surface	on Surface	on Surface						
4	55"	16"	15"	14"	12"	9"	12"						
5	52"	51"	50"	55"	50"	39"	42"						
6	53"	35"	36"	35"	33"	28"	32"						
7	67"	30"	30"	29"	28"	23"	25"						
8	60"	53"	55"	53"	50"	41"	46"						
9	59"	DRY	61"	DRY	DRY	54"	57"						
10	54"	31"	33"	32"	31"	23"	29"						
11	57"	27"	27"	25"	22"	13"	19"						
12	51"	31"	35"	35"	31"	21"	23"						
13	50"	33"	34"	34"	32"	23"	29"						
14	53"	39"	41"	41"	38"	28"	34"						
15	52"	36"	35"	36"	32"	22"	24"						
16	56"	31"	33"	32"	27"	17"	12"						
17	58"	34"	35"	31"	28"	17"	17"						
18	53"	47"	48"	48"	43"	31"	33"						
19	53"	47"	50"	49"	47"	36"	34"						
20	52"	53"	54"	54"	50"	32"	35"						
21	55"	52"	53"	51"	45"	30"	33"						
22	49"	49"	50"	48"	42"	30"	34"						
23	54"	29"	28"	26"	22"	10"	16"						

Cochiti PUEBLO WATERTABLE - JDY
YEAR 1979
TABLE INDICATES INCHES TO WATER

DATE OF STUDY		26	26	26	17	23	21						
Well No.	Total Depth	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
24	53"	DRY	DRY	DRY	DRY	31"	30"						
25	59"	53"	52"	49"	41"	26"	28"						
26	53"	48"	49"	45"	39"	28"	31"						
27	52"	37"	37"	33"	28"	17"	22"						
28	63"	60"	59"	54"	46"	30"	32"						
29	68"	58"	56"	52"	45"	30"	33"						
30	66"	47"	48"	44"	38"	26"	33"						
31	61"	43"	43"	39"	33"	23"	27"						
32	59"	57"	58"	54"	48"	34"	36"						
33	55"	48"	49"	45"	39"	30"	33"						
34	67"	45"	46"	42"	37"	29"	31"						
35	51"	41"	42"	38"	33"	27"	30"						
36	60"	36"	36"	30"	24"	15"	15"						
37	50"	43"	44"	43"	42"	42"	39"						
38	62"	40"	40"	39"	35"	31"	30"						
39	37"	on Surface	on Surface	on Surface	on Surface	on Surface	on Surface						
40	58"	18"	17"	20"	16"	9"	12"						
41	60"	58"	61"	59"	52"	37"	38"						
42	63"	44"	41"	35"	25"	9"	10"						
43	36"	5"	5"	on Surface	on Surface	on Surface	on Surface						
44	53"	41"	40"	35"	27"	24"	26"						
45	57"	44"	41"	35"	25"	under Water	8"						
46	54"	45"	44"	36"	27"	10"	14"						

COCHITI PUEBLO WATERTABLE STUDY
YEAR 1979
TABLE INDICATES INCHES TO WATER

DATE OF STUDY		26	26	26	17	23	21						
Well No.	Total Depth	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
47	60"	DRY	DRY	55"	52"	33"	23"						
48	65"	63"	62"	57"	50"	35"	33"						
49	52"	DRY	54"	57"	51"	49"	50"						
50	48"	41"	38"	30"	24"	16"	21"						
51	54"	37"	35"	28"	21"	13"	15"						
52	58"	50"	48"	34"	29"	23"	24"						
53	55"	Established 5-18-79				24"	12"						
54	56"		"			34"	22"						
55	50"		"			44"	46"						
56	52"		"			49"	51"						
57	46"		"			24"	30"						
58	50"		"			46"	46"						
59	48"		"			38"	39"						
60	60"		"			23"	29"						

ALBUQ[illegible] THE ARMY
CORPS OF ENGINEERS
1580
ALBUQUERQUE, NEW MEXICO 87103

Mr. Elms 766-2701 (Carothers) or 766-2705 (Elms)

SWARE-A

13 January 1977

Honorable Fred Cordero
Governor of Cochiti Pueblo
Box 70
Cochiti Pueblo, New Mexico 87041

Dear Governor Cordero:

This is with regard to the Corps of Engineers' effort to find a solution to the subsurface water under the Cochiti de Pueblo lands below the Cochiti Dam and Reservoir.

My representatives who attended your Council meeting on Wednesday, 1 December 1976, to discuss the easement to close the drainage ditch, have briefed me on the most recent information presented by representatives of the Bureau of Indian Affairs concerning changes in the water table. I share the concern of you and the members of your Council over this problem. Therefore, I have initiated a study to determine the source of the water, define the magnitude of the problem and outline a solution.

Since the measurements of the ground water level made by representatives of the Bureau of Indian Affairs were in 1957 and 1974, both before impoundment of water behind the dam, I find it essential to establish a series of observation wells with piezometers for regular periodic measurement of the ground water levels. Also, for comparative analysis, five river gage posts are necessary.

I am prepared to commence collecting data as soon as the wells and gages are installed. In this connection, I have inclosed an original and three copies of a Right-of-Entry for Survey and Exploration to permit entry to Pueblo land for our personnel and drilling equipment.

The right-of-entry is a temporary grant for one year, and will permit us to proceed with our assistance immediately. A drilling rig will be used to accomplish installation of the piezometers. Drilling and survey crews will limit vehicular travel to existing roads as much as possible. Should some damage occur to the land during drilling, the right-of-entry is the instrument by which you can make any claims directly to my office.

SWARE-A 13 January 1977
Honorable Fred Cordero

When the observation wells have been drilled and the gaging stations established, we shall determine their exact locations and lease the sites from the Pueblo until the study is completed.

In summary, I am eager to join the Pueblo Government in solving this problem expeditiously and permanently. In view of the adverse consequences of further delay, I urge your favorable consideration of the right-of-entry and subsequent lease. If your Council concurs with my proposal, please execute all copies of the right-of-entry and return them to me in the postage-paid envelope. A copy of this letter and the right-of-entry is being sent to Mr. Philip R. Ashby, Counsel for the Pueblo. Should either you or Mr. Ashby have any questions, please contact Mr. Wood or Mr. Elms in my Real Estate Division at 766-2703 or 766-2704.

Congratulations on your election. I look forward to working with you.

Sincerely,

2 Incl
1. Right-of-Entry (quad)
2. Return envelope

RICHARD E. LEONARD
Colonel, CE
District Engineer

Copy furnished: w/cy incl 1
Mr. Philip R. Ashby
Attorney at Law
618 Manzano NE
Albuquerque, NM 87110

DEPARTMENT OF THE ARMY

RIGHT-OF-ENTRY FOR SURVEY AND EXPLORATION

Cochiti Lake	See attached aerial photograph
(Project, Installation or Activity)	*(Tract Number or Other Property Identification)*

The undersigned, hereinafter called the "Owner", hereby grants to the UNITED STATES OF AMERICA, hereinafter called the "Government", a permit or right-of-entry upon the following terms and conditions.

1. The Owner hereby grants to the Government an irrevocable right to enter upon the lands hereinafter described at any time within a period of twelve (12) *months from the date of this instrument, in order to survey, make test borings, and carry out such other exploratory work as may be necessary to complete the investigation being made of said lands by the Government.*

2. The permit includes the right of ingress and egress on other lands of the Owner not described below, provided such ingress and egress is necessary and not otherwise conveniently available to the Government.

3. All tools, equipment, and other property taken upon or placed upon the land by the Government shall remain the property of the Government and may be removed by the Government at any time within a reasonable period after the expiration of this permit or right-of-entry.

4. The Government agrees to be responsible for damages arising from the activity of the Government, its officers, employees, or representatives on said land, in the exercise of rights under this permit or right-of-entry, either by repairing such damage or at the option of the Government by making an appropriate settlement with the Owner in lieu thereof.

5. If aircraft flights over said lands, or entry upon the land by means of helicopter or other type aircraft, are necessary, the Government shall inform the Owner, in advance, of each such flight or entry.

6. The land affected by this permit or right-of-entry is located in the State of New Mexico *, County of* Sandoval *, and is* xxxxxxxxxxxxxxx delineated on the attached aerial photograph.

WITNESS MY HAND AND SEAL this _____ *day of* _____ *, 19*

PUEBLO OF COCHITI

By: _____ *(SEAL)*
FRED CORDERO GOVERNOR

_____ *(SEAL)*

UNITED STATES OF AMERICA

By

ENG FORM 1 APR 74 1258 (ER 405-1-625) EDITION OF 1 DEC 62 IS OBSOLETE.

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

11 August 1978

Honorable Pete V. Domenici
United States Senate
Washington, D.C. 20510

Dear Senator Domenici:

My predecessor, Colonel Leonard, and I have attempted to keep all of New Mexico's Congressmen and Senators abreast of the "wet field problem" in the vicinity of Cochiti Dam. As related in previous correspondence, our study has also included the areas in and around both Pena Blanca and Sile. This study shows that the problem in these two areas is caused by seepage and leakage from the earthen irrigation canals and can be, at least partially attributed to the fact that water introduced into the canals at Cochiti Dam is now clear because of the stilling effect of the dam.

The Corps of Engineers mission does not include the initial or remedial design of irrigation systems. Therefore, there is a question as to my authority to line the canals below Cochiti Dam. However, because the canal seepage may be project related, I feel a responsibility to pursue a solution of the problem. Accordingly, I am in the process of preparing a request to higher authority for a determination of responsibility on lining of the canals below Cochiti Dam. In the event that leakage from the canals is determined to be project related and I am authorized to proceed, funds for the remedial design and construction will be requested so that early construction can be initiated.

I appreciate your interest in the "wet field problem" below Cochiti Dam and its effect on local communities. I will pursue an equitable and timely solution to this problem to the full extent of my authority.

Sincerely yours,

BERNARD J. ROTH
Colonel, CE
District Engineer

87-538 0 - 88 - 8

John M. Bowannie
Governor

Alvin Arquero
Lt. Governor

Pueblo de Cochiti

Andrew Quintana
Treasurer

Gertrude Lovato
Secretary

BOX 70
COCHITI, NEW MEXICO 87041
Telephone: 505-465-2244

April 9, 1980

Honorable Pete V. Domenici
United States Senator
Washington, D. C.

Dear Senator Domenici:

On behalf of the Pueblo de Cochiti, I sincerely appreciate the opportunity you have afforded for me to make this statement to explain the problems presented by the seepage of water from Cochiti Dam.

We at Cochiti are the original farmers in the area of the Dam, having irrigated our fields in their present location and other locations now farmed by our non-Indian neighbors since before the arrival of the Spanish in the late 1500's. Our entire culture and tradition, including our religious practices, are tied to the land and the water to irrigate our crops. Therefore, it is of utmost seriousness to the Pueblo when the productivity of our irrigated lands is damaged by the rise in water table brought about by the seepage from Cochiti Dam.

The problem first became obvious to us in 1976, when approximately 17 acres of our irrigated land was inundated and our farmers began noticing a loss of crops. The problem has gotten more serious since then with more and more of our irrigated land being damaged by the seepage from the dam.

We asked the Corps of Engineers to take action to alleviate our problems. The Corps has, in part, responded, by funding the construction of an underground drainage system to drain the 17 acres which was inundated beginning in 1976, and has suggested that Cochiti file administrative claims against the Corps for

money damages. These claims are in the process of being prepared and will be filed shortly. However, money will not replace lands which may be rendered valueless because of seepage from the Dam and we seriously question whether the presently-funded Corps of Engineers drainage system will really solve the problem. Therefore, we ask your assistance to do the following: obtain adequate Federal funding to allow the Corps of Engineers and/or any other appropriate Federal agency to construct such work as will restore our irrigated lands to the condition they were in before the damage caused by the seepage and to compensate our farmers for their losses. We also want these funds and programs to assist any of our neighbors who have suffered similar losses or damage. The people in the Cochiti-Pena Blanca area need your assistance and we stand ready to work with you and any appropriate Federal Agency to solve this very serious problem.

Very truly yours,

John M. Bowannie
Governor

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314-1000

REPLY TO ATTENTION OF:

DAEN-ZA

PUEBLO de COCHITI
RECEIVED
JAN 05 1987
TRIBAL OFFICE
COCHITI, N. M.

10 December 1986

Mr. Jesse B. Gilmer
P. O. Box 12785
El Paso, Texas 79913

Dear Jessee:

I enjoyed spending the evening with you in Albuquerque November 18th. I appreciate you taking time from your busy schedule to join the Corps group at the Maria Theresa Restaurant.

As we discussed, the Corps (with Dave Peixotto in the lead) will be working hard to find the solution to the problem below Cochiti Dam. It is in everyone's interest to find that resolution. As I told you, I made that commitment to Governor Sam Arquero of the Cochiti Pueblo. And I know Assistant Secretary Bob Dawson has taken the time to get acquainted with the problem.

I looked into the issue we discussed at the potential Corps involvement in a U.S.-Mexican border issue of wastewater in the San Diego area. I learned that the Army and Environmental Protection Agency (EPA) have entered into an Interagency Agreement for the Corps to manage initial planning and design for treatment works to address this problem. The Corps-managed work will be done over a 2-year period ending 30 September 1988 at which time the project will be ready for construction advertisement.

Sorry we missed you at the NWRA meeting in San Diego.

Sincerely,

E. R. HEIBERG III
Lieutenant General, USA
Chief of Engineers

SRD

MANAGING BOARD
Dr. William Gorman
505 522 2256
Dr. Robert R. Lansford
505 522 2660

Southwest Research and Development Company
1825 IMPERIAL RIDGE • LAS CRUCES, NEW MEXICO 88001

April 10, 1987

14

Mr. Michael P. Gross
Roth, Van Amberg, Gross,
Amarant & Rogers Law Offices
347 East Palace Avenue
P. O. Box 1447
Santa Fe, NM 87504-1447

Dear Mike:

Please find enclosed a copy of the revised claims. I've included all of the names and dollar amounts for the same periods, 1984, 1985 and 1976-1984, that you filed. A claim of $0.00 indicates that the tribal member had assigned acreage but no damage claim or was already paid for damages according to our records.

If you have any questions, please feel free to call me.

Sincerely,

Gail

Gail Welsh

Enclosure

Table 1. Revised claims - Mike

NAME	1984	1985	1976-84
Ahsona, Andrew			37,971.15
Arquero, Johnnie	282.52	199.55	1,294.16
Arquero, Pat & Salvador Romero	0.00	0.00	80.01
Arquero, Sam	2,724.74	1,605.28	24,488.22
Chalan, Candelaria		1,396.86	0.00
Chalan, Daniel		3,259.35	1,567.26
Chalan, Mark		3,370.21	0.00
Chavez, Francisco	433.72	396.09	2,508.97
Chavez, Frank	454.82	0.00	925.56
Cordero, George	3,453.01	3,148.48	13,756.70
Cordero, Joe L.	1,789.28	2,394.62	9,595.16
CrazyHorse, Cippy		1,263.83	0.00
Herrera, Arnold	862.55	813.70	8,282.03
Herrera, Delfino	1,318.42	931.24	6,039.39
Herrera, Jose D.	0.00	0.00	0.00
Herrera, Lawrence	235.84	215.38	458.11
Herrera, Steven	1,179.22	1,254.29	6,029.70
Martin, William	10,023.85	8,894.39	58,302.73
Naranjo, Louis	3,113.14	2,843.05	16,443.67
Naranjo, Sandy	377.35	344.61	2,012.31
Ortiz, Guadalupe	2,511.28	3,148.48	25,884.15
Pecos, Al	0.00	0.00	0.00
Pecos, Nate & Paul Trujillo	6,278.19	4,434.48	89,149.93
Quintana, Delfin	0.00	886.90	12,447.16
Quintana, Joe A.			121.55
Quintana, Joseph C.	0.00	0.00	0.00
Quintana, Joseph U.	0.00	2,217.24	7,247.46
Quintana, Joseph U. & Delfin Q	0.00	569.52	9,689.12
Quintana, Silviano	23,613.10	22,337.49	227,082.39
Romero, Joe A.	0.00	443.45	637.71
Romero, Sammy	0.00	1,197.31	323.25
Suina, Cre		909.07	0.00
Suina, Ernest	4,928.38	3,481.07	30,495.25
Suina, Jimmy	0.00	0.00	0.00
Suina, Jose Rey	0.00	1,064.27	0.00
Suina, Marcello	0.00	0.00	0.00
Suina, Octavio	2,247.30	1,906.19	14,224.70
Suina, Rudy	761.02	2,153.83	6,429.74
Suina, Solomon	0.00	0.00	0.00
Tribe	30,493.01	119,244.49	105,180.33
Trujillo, Onofre			11,745.01
Trujillo, Paul			11,361.06
Trujillo, Ray	1,098.68	776.03	5,032.83
Total	98,179.42	197,100.73	746,806.77

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

Cochiti - CC

SWADD

11 January 1979

Honorable Isaac P. Herrera
Governor of Pueblo de Cochiti
P. O. Box 70
Cochiti Pueblo, NM 87041

Dear Governor Herrera:

Congratulations on your selection as Governor! We look forward to working with you, as we have with Governor Quintana and other previous governors. I am writing to keep you informed of developments related to the high water table problem below Cochiti Dam. As you are aware, there are two separate problems. One is the high water table on Pueblo de Cochiti land resulting from seepage from the dam. The second is the increased seepage from irrigation canals, resulting in water loss and high water table adjacent to the canals. Irrigators from Cochiti, Pena Blanca and Sile have all complained that the clear water being released from Cochiti Dam is the cause of the problem, and inquired as to what the Corps of Engineers might do to correct it.

I referred the question of Corps authority to line irrigation canals below Cochiti Dam to the Office of the Chief of Engineers (OCE). OCE informed me that the Corps of Engineers has no authority under existing laws to correct the leaking canal problem. This determination was based on the premise that one of the project purposes of Cochiti Dam was sedimentation control, and the federal government made no representations as to the quality of the water released from the project. Further, the canal leakage problem being experienced by the irrigators in Pena Blanca, Sile and Pueblo de Cochiti is not caused by the construction of the Cochiti project, but is due to the inability of the canals to transport clear water. In other words, the quality of construction of the canals was sufficient to transport silt-laden water, but not to transport the now-clear water. Since it was an anticipated benefit that the water would be clarified, the Corps has no responsibilities to improve the quality of the canals.

It is OCE's view that any assistance to the canal owners, provided through the Corps of Engineers, must be provided for by special authority

SWADD 11 January 1979
Honorable Isaac P. Herrera

granted by Congress. An example of such special legislation is that obtained for the Niobrara, Nebraska, drainage problem related to operation of Gavins Point Dam and Lewis and Clark Lake Project (Section 213 of Public Law 91-611).

However, we do recognize there may be liability for damages caused by the unanticipated rise in ground waters on Pueblo de Cochiti land immediately downstream of Cochiti Dam. This is more related to impoundment of water behind the dam than to the irrigation canal ditch problems discussed above. As you know, we are working on a drainage plan for the Pueblo de Cochiti farmland below the dam. I expect to forward a design memorandum to higher authority sometime in March 1979. If the design memorandum is approved, construction of the drainage system should begin in the latter part of 1979 or early 1980.

I am available to meet with you and your council at any time you desire. However, as I informed Mr. Philip R. Ashby, your attorney, the best time would probably be in late February or early March. The design of the drainage system will be complete, and we can explain it to you then. In the meantime, should you have any questions, please get in touch with me or Mr. Jerry Hammers, our Cochiti Lake Resident Superintendent.

Best wishes for a prosperous New Year.

Sincerely yours,

LARRY A. BLAIR
Lieutenant Colonel, CE
Deputy District Engineer

IN REPLY REFER TO:

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
SOUTHERN PUEBLOS AGENCY
P.O. BOX 1667
1000 INDIAN SCHOOL ROAD, N.W.
ALBUQUERQUE, NEW MEXICO 87103

Land Operations
Engineering

Baxer

January 11, 1977

Colonel Richard E. Leonard
District Engineer
Albuquerque District, Corps of Engineers
P. O. Box 1580
Albuquerque, New Mexico 87103

Dear Colonel Leonard:

On January 4, 1977, Mr. T. McDaniel, Soils Engineer, from your Design Branch called this office and requested copies of the current Bureau of Indian Affairs water table study data on the Cochiti Pueblo farm land located below the Corps Cochiti Dam.

Bureau of Indian Affairs survey crews have installed observation wells at 52 locations and regular observation work has begun. A map indicating the well locations and data sheets showing the observed water table levels are attached for your information. It is our intention to continue these observations on a monthly basis until the problem is resolved or some other arrangement is made. We plan to submit this data to the Cochiti Pueblo Governor, Pueblo attorney and your office.

We are deeply concerned regarding this present high water table which seems to have occurred after water was stored in Cochiti Lake. We suggest the matter can only be resolved when the source of the problem can be determined and positive measures are taken to prevent further reoccurrence. We believe the responsibility for determining and resolving the problem properly belongs to the Corps of Engineers. The forces of this Agency are available to assist the Corps.

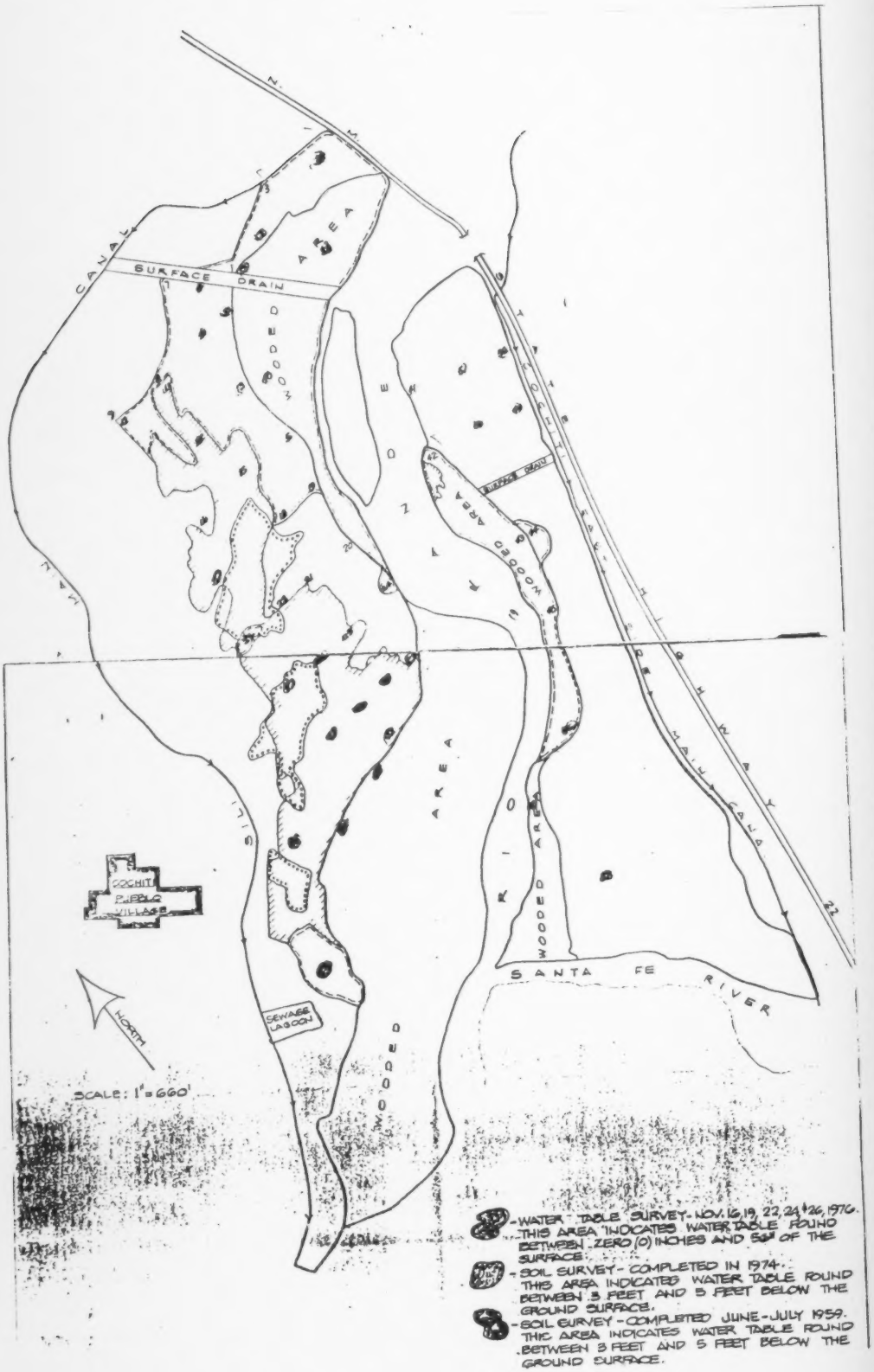
We hope to hear from you at an early date regarding your plans to solve this problem which is a very serious concern of this Agency and the Cochiti Pueblo.

Sincerely yours,

(SGD) LARK J. [illegible]
ACTING SUPE[illegible]

Superintendent

cc: Governor, Pueblo of Cochiti
Mr. Phil Ashby, Attorney ✓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COCHITI PUEBLO WATERTABLE STUDY

YEAR 1946

TABLE INDICATES INCHES TO WATER

TIME OF STUDY													13	
WELL NO.	TOTAL DEPTH	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC	
1	65"											41"		
2												41"		
3	39"											26"		
4	55"											47"		
5	52"											DRY		
6	53"											DRY		
7	67"											54"		
8	53"											DRY		
9	54"											DRY		
10	54"											42"		
11	54"											DRY		
12	51"											41"		
13	50"											50"		
14	53"											DRY		
15	52"											52"		
16	56"											DRY		
17	58"											52"		
18	53"											49"		
19	53"											52"		
20	52"											DRY		
21	55"											DRY		
22	49"											DRY		
23	54"											50"		
24	53"											49"		
25	54"											50"		

COCHITI PUEBLO WATERTABLE STUDY

YEAR 1971.

TABLE INDICATES INCHES TO WATER

DATE OF STUDY		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
WELL NO.	TOTAL DEPTH												
27	52"											52"	DRY
28	63"											DRY	DRY
29	68"											50"	DRY
30	66"											DRY	57
31	61"											DRY	52
32	51"											DRY	DRY
33	55"											55"	DRY
34	67"											42"	55
35	56"											56"	53
36	60"											42"	44
37	50"											39"	DRY
38	62"											45"	53
39	37"											18"	12
40	58"											22"	40
41	49"											DRY	DRY
42	63"											52"	54
43	36"											14"	13
44	53"											36"	32
45	40"											DRY	DRY
46	54"											51"	49
47	49"											DRY	DRY
48	54"											DRY	DRY
49	52"											35"	24
50	48"											32	32
51	53"												

DEPARTMENT OF THE AR
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

SWAED-TA

9 November 1977

Honorable Stanley Paytiamo
Governor of Acoma Pueblo
P. O. Box 309
Acomita, New Mexico 87034

Dear Governor Paytiamo:

At your meeting of the Southern Pueblos Council held on 7 November 1977, the safety of Cochiti Dam and related seepage was scheduled as an agenda item for your next regular Council meeting scheduled for 28 November 1977 at Cochiti Pueblo.

I would be pleased to discuss the Cochiti project with you and the Council, and to present the data collected from the observation wells we have installed in the areas downstream from the dam. Please let me know the time scheduled for the discussion. My telephone number is 766-2732.

Sincerely,

RICHARD E. LEONARD
Colonel, CE
District Engineer

Copies furnished:
✓Hon. Fred Cordero, Governor of Cochiti Pueblo; P.O. Box 70; Cochiti, NM 87041
Hon. Victor Garcia, Governor of Santo Domingo Pueblo; General Delivery; Santo Domingo Pueblo, NM 87052
Hon. Guadalupe Esquibel, Governor of San Felipe Pueblo; P.O. Box 308; Algodones, NM 87001
Hon. Clyde Leon, Governor of Santa Ana Pueblo; P.O. Box 37; Bernalillo, NM 87004
Hon. Mike Avila, Governor of Sandia Pueblo; P.O. Box 608; Bernalillo, NM 87004
Hon. John D. Jojola, Governor of Isleta Pueblo; P.O. Box 317; Isleta, NM 87022
Bureau of Indian Affairs, ATTN: Mr. Mark J. Stevens; P.O. Box 1667; Albuquerque, NM 87103
I&US Section

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

SWADE

25 June 1976

Governor Geronimo Quintana
Cochiti Pueblo
P. O. Box 70
Cochiti Pueblo, NM 87041

Dear Governor Quintana:

In a recent meeting with several of your Councilmen, it became apparent that in the wake of the Teton Dam failure the Cochitis and others are somewhat concerned for the safety of the people and lands below Cochiti Dam. Therefore, I would like to briefly explain the design of this dam and the program that we have implemented to assure that the dam is safe and that it will remain safe in the future.

The design of Cochiti Dam began with the selection of a site which was based on extensive subsurface investigation to assure that we understood foundation and geologic conditions in the area and specifically at the site. Since earthfill dams are constructed of native materials, available construction materials near the project were investigated during the initial exploration program. Analysis of the foundation and the available materials was continued throughout all stages of design. Later, foundation exposed during construction was studied and additional investigation performed as a need for additional information was indicated. In sum, the subsurface exploration program for Cochiti Dam was very extensive.

Design of the Cochiti embankment was a combined effort of designers from all major disciplines of the civil engineering field. For example, the list would include structural, soils, hydrologic, hydraulic, construction, and geologic engineers. These people were all highly trained in dam design and experts in their fields.

The design effort took several years and at each stage the results were reviewed by higher authority to assure a safe and functional structure. Each phase of the work, including final plans and specifications, was

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

approved by experts in the Corps of Engineers at both the Southwestern Division and Office of the Chief of Engineers before design of the next stage of construction could begin.

We built the embankment of Cochiti Dam in such a way that it makes the best possible use of the native materials, utilizing the latest construction methods and equipment. The design took into consideration the particular foundation conditions found at the Cochiti site. As part of the design process, special consideration was given to assuring the stability of the earthen structure against all external and internal forces, including earthquakes, pressure from the water it impounds, and the force of its own weight. In order to control seepage and prevent piping in either the embankment or foundation, special precautions were taken. These include constructing an impervious (essentially waterproof) cutoff to foundation rock where feasible, installation of upstream impervious blankets, installation of an impervious core, provision of pervious material zones to safely convey internal seepage out of the structure, and relief wells to prevent water accumulation under the structure. All of these are incorporated into the design as an integral system for the purpose of controlling seepage and preventing piping.

During construction, the dam was continually inspected by both resident construction people and engineers from the District Office to assure that the structure was built in accordance with the design and to assure that any conditions not anticipated in the design would be properly interpreted and accounted for. Construction quality was continually monitored through testing and observation programs by both the Corps of Engineers and the Contractor to assure good construction techniques and proper use and placement of construction materials.

In order to provide for later monitoring of the operating structure, an instrumentation system was designed into Cochiti Dam to indicate both internal and external movement of the embankment, water forces, seepage, and any seismic induced forces. The instruments are read at frequent intervals, and the resultant data are analyzed for indications of malfunction. Thus far we have not encountered anything alarming or unusual.

There is a resident operating staff at the Cochiti Project which continually observes the structure for any unusual performance and reports its observations to the District Office for analysis. Additionally, the project is inspected annually by seasoned engineers from the District staff and periodically (maximum interval of 5 years) by Southwestern Division and the Office of the Chief of Engineers experts to assure continued safe operation. Cochiti's first periodic inspection was last June and the second was performed the 21st of this month. These inspections and the

SWADE
Governor Geronimo Quintana

25 June 1976

instrumentation system show that Cochiti Dam is operating properly and is in no danger of breaching even if the reservoir were full.

Any structure impounding a pool of water, such as Cochiti Dam, will affect the ground water table in adjacent areas. Because subsurface features in the area are very complex, it was impossible to predict exactly where ground water might surface. As you are aware, we are in the process of correcting one problem where water rose to the surface immediately downstream of the dam. The work will be completed later this year when we install a drain pipe in the ditch and replace the earth. You are also aware that downstream residents have observed what is thought to be seepage from Cochiti Dam as far downstream as Pena Blanca. We will continue to investigate those areas of apparent seepage to determine whether they are related to the operation of Cochiti Dam. We encourage you to report any problem that is believed to be associated with seepage from Cochiti Dam so that we can evaluate. Investigations will be made to determine the cause of the problem, and if the problem is caused by Cochiti Dam, it will be corrected.

In sum, I want to assure you that Cochiti Dam is a safe structure and poses no threat to downstream residents. We in the Corps of Engineers look forward to working closely with you to ensure that it remains a safe and beneficial project for all the people of New Mexico.

Sincerely yours,

Richard E Leonard

RICHARD E. LEONARD
Colonel, CE
District Engineer

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

Cochiti - CE

SWARE-A

25 August 1976

Honorable Geronimo Quintana
Governor, Cochiti Pueblo
Box 70
Cochiti Pueblo, New Mexico 87041

Dear Governor Quintana:

It has come to my attention that the level of the ground water below Cochiti Dam should be monitored. Therefore, I am requesting the right to install six observation wells to monitor the ground water level in order to correlate ground water levels with fluctuations of pool elevations for the Cochiti Lake Project. Each well will consist of a 1¼-inch pipe, installed approximately 30 feet deep, which will be capped and extend less than one foot above the ground. The wells will be located parallel and adjacent to new State Highway 22 right-of-way, starting approximately ¼ mile north of Pena Blanca. The wells will be drilled by a drilling rig, and entrance to the Pueblo property will be made through existing gates. After the wells are installed, they will be monitored approximately every two weeks by personnel who will uncap the well pipe, lower a monitoring instrument to measure the water table depth, and then recap the well.

Inclosed is a proposed Right-of-Entry for Survey and Exploration. The Right-of-Entry will give the Government the right to do the work as outlined above. After the wells have been located and drilled, the Government proposes to secure a five-year easement in the well sites for continued testing. Exhibits "A" and "B", attached to the Right-of-Entry, set out the general location of each observation well.

If my proposal is agreeable to you and the Council, please sign all three copies of the Right-of-Entry and return them to me in the inclosed envelope which requires no postage.

SWARE-A 25 August 1976
Honorable Geronimo Quintana

If you have any questions in regard to the above, please feel free to contact me or Mr. Elms of my Real Estate Division. He can be reached at 766-2705.

Your assistance in this matter will be greatly appreciated.

Sincerely yours,

2 Incl
1. Right-of-Entry (trip)
2. Envelope

RICHARD E. LEONARD
Colonel, CE
District Engineer

Copy furnished: w/cy incl 1

Mr. Phillip R. Ashby
Attorney at Law
618 Manzano NE
Albuquerque, NM 87110

Mr. Kenneth L. Payton
Superintendent, Southern Pueblos Agency
Bureau of Indian Affairs
US Department of the Interior
P. O. Box 1667
Albuquerque, NM 87103

DEPARTMENT OF THE ARMY

RIGHT-OF-ENTRY FOR SURVEY AND EXPLORATION

COCHITI LAKE PROJECT
(Project, Installation or Activity)

WELL LINE NO. 4
(Tract Number or Other Property Identification)

The undersigned, hereinafter called the "Owner", hereby grants to the UNITED STATES OF AMERICA, hereinafter called the "Government", a permit or right-of-entry upon the following terms and conditions:

1. The Owner hereby grants to the Government an irrevocable right to enter upon the lands hereinafter described at any time within a period of twelve (12) *months from the date of this instrument, in order to survey, make test borings, and carry out such other exploratory work as may be necessary to complete the investigation being made of said lands by the Government.*

2. The permit includes the right of ingress and egress on other lands of the Owner not described below, provided such ingress and egress is necessary and not otherwise conveniently available to the Government.

3. All tools, equipment, and other property taken upon or placed upon the land by the Government shall remain the property of the Government and may be removed by the Government at any time within a reasonable period after the expiration of this permit or right-of-entry.

4. The Government agrees to be responsible for damages arising from the activity of the Government, its officers, employees, or representatives on said land, in the exercise of rights under this permit or right-of-entry, either by repairing such damage or at the option of the Government by making an appropriate settlement with the Owner in lieu thereof.

5. If aircraft flights over said lands, or entry upon the land by means of helicopter or other type aircraft, are necessary, the Government shall inform the Owner, in advance, of each such flight or entry.

6. The land affected by this permit or right-of-entry is located in the State of New Mexico *, County of* Sandoval *, and is described* ~~as follows:~~ on Exhibit "A", attached hereto and made a part hereof. The location of the land, designated Line No. 4, is shown on Exhibit "B", attached hereto and made a part hereof.

WITNESS MY HAND AND SEAL this _____ *day of* _____ *, 19*

_____ *(SEAL)*

_____ *(SEAL)*

UNITED STATES OF AMERICA

By _____

ENG FORM 1 APR 74 1258 (ER 405-1-625) EDITION OF 1 DEC 62 IS OBSOLETE.

EXHIBIT "A"

COCHITI LAKE PROJECT WELL LINE NO. 4

Six parcels of land situate within Sections 17, 20 and 29, Township 16 North, Range 6 East of the New Mexico Principal Meridian, being more particularly described as follows:

Parcel No. 1: Situate on the East side of New Mexico Highway 22 within the East Half of the Northwest Quarter of the Southeast Quarter ($E\frac{1}{2}NW\frac{1}{4}SE\frac{1}{4}$) of Section 17, Township 16 North, Range 6 East, N.M.P.M., containing 20.00 acres, more or less.

Parcel No. 2: Situate on the East side of New Mexico Highway 22 within the South Half of the South Half of the Southwest Quarter of the Southeast Quarter ($S\frac{1}{2}S\frac{1}{2}SW\frac{1}{4}SE\frac{1}{4}$) of Section 17, and the North Half of the North Half of the Northwest Quarter of the Northeast Quarter ($N\frac{1}{2}N\frac{1}{2}NW\frac{1}{4}NE\frac{1}{4}$) of Section 20, Township 16 North, Range 6 East, N.M.P.M., containing 20.00 acres, more or less.

Parcel No. 3: Situate on the East side of New Mexico Highway 22 within the East Half of the Southeast Quarter of the Northwest Quarter ($E\frac{1}{2}SE\frac{1}{4}NW\frac{1}{4}$) of Section 20, Township 16 North, Range 6 East, N.M.P.M., containing 20.00 acres, more or less.

Parcel No. 4: Situate on the East side of New Mexico Highway 22 within the South Half of the Northeast Quarter of the Southwest Quarter ($S\frac{1}{2}NE\frac{1}{4}SW\frac{1}{4}$) of Section 20, Township 16 North, Range 6 East, N.M.P.M., containing 20.00 acres, more or less.

Parcel No. 5: Situate on the East side of New Mexico Highway 22 within the North Half of the Northeast Quarter of the Northwest Quarter ($N\frac{1}{2}NE\frac{1}{4}NW\frac{1}{4}$) of Section 29, Township 16 North, Range 6 East, N.M.P.M., containing 20.00 acres, more or less.

Parcel No. 6: Situate on the East side of New Mexico Highway 22 within the West Half of the Northeast Quarter of the Southwest Quarter ($W\frac{1}{2}NE\frac{1}{4}SW\frac{1}{4}$) of Section 29, Township 16 North, Range 6 East, N.M.P.M., containing 20.00 acres, more or less.

EXHIBIT "B"
OBSERVATION WELLS AT PENA BLANCA.

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

SWARE-A

29 October 1976

Honorable Jerry Quintana
Governor of Cochiti Pueblo
Box 70
Cochiti Pueblo, New Mexico 87041

Dear Governor Quintana:

This is with reference to the ditch which was dug below the Cochiti Dam in an effort to provide a subsurface drainage for Cochiti land. As you know, the Council gave permission to dig the sub-drain ditch on 5 February 1976 with the understanding that the cut would remain open through the summer, and that closure would be made in the fall.

The ditch was very effective in controlling the subsurface water. I feel that the sub-drain system should be retained on a permanent basis to protect Cochiti land from a possible recurrence of the problem previously experienced. Therefore, I propose that a permanent easement be created which would allow the Government to install, monitor and maintain the sub-drain system in the existing ditch.

Inclosed is the proposed easement for the sub-drain. If my proposal meets with the Cochiti Council's approval, please sign the agreement as indicated and return the easement to me.

If you have any questions in regard to the above, please feel free to contact me or Mr. Elms of my Real Estate Division. He can be reached at 766-2705.

The assistance of the Council and yourself will be greatly appreciated.

Sincerely yours,

1 Incl
Easement Deed

RICHARD E. LEONARD
Colonel, CE
District Engineer

Copy furnished: w/cy incl
Mr. Phillip R. Ashby
Mr. Kenneth L. Payton

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

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MALCOLM WALLOP, WYO.

United States Senate
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, D.C. 20510

August 17, 1978

Joe A. Quintana
Governor
Cochiti Pueblo
P.O. Box 70
Cochiti Pueblo, New Mexico 87041

Dear Governor Quintana:

Enclosed is recent correspondence which I have received from the Corps in regard to the seepage problem and subsequent flooding at Cochiti Dam.

I am pleased to know that the Corps is actively pursuing solutions to the problem, and you may be sure that I will be following this matter closely.

If I can be of any further assistance, please let me know. Best wishes,

Sincerely,

Pete V. Domenici
United States Senator

PVD:ld
Enclosure

NEW MEXICO

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS

SELECT COMMITTEE ON ETHICS

United States Senate

WASHINGTON, D.C. 20510

January 29, 1979

Governor Joe A. Quintana
Pueblo de Cochiti
Box 70
Cochiti, New Mexico 87041

Dear Governor Quintana:

This letter is with further reference to the water seepage problems in the vicinity of Cochiti Dam.

Enclosed is a status report on the situation from Colonel Bernard J. Roth, District Engineer for the Corps of Engineers in Albuquerque. It is my understanding from Colonel Roth's letter that the Corps is continuing to work on a drainage plan for Cochiti Pueblo farmland immediately below the dam, and expects to have a design memorandum prepared sometime in March 1979. It is my further understanding that if the design memorandum is approved, construction of the drainage system will begin in early 1980.

I would very much appreciate your comments on Colonel Roth's letter, and hope that you won't hesitate to contact my office in Santa Fe, 988-6647, if you have any questions.

Sincerely,

Harrison Schmitt

HS:wc

Enclosure

John M. Bowannie
Governor

Alvin Arquero
Lt. Governor

Pueblo de Cochiti

Andrew Quintana
Treasurer

Gertrude Lovato
Secretary

BOX 70
COCHITI, NEW MEXICO 87041
Telephone: 505-465-2244

April 11, 1980

Bernard J. Roth, Colonel, CE
District Engineer
Albuquerque District
Corps of Engineers
P.O. Box 1580
Albuquerque, New Mexico 87103

RE: Claims by Pueblo de Cochiti for Damages Caused by Seepage From Cochiti Dam

Dear Colonel Roth:

The Pueblo de Cochiti Council has authorized me to submit claims vs. the Corps of Engineers for damages, as set forth below, arising from the rise in water table under certain lands of the Pueblo de Cochiti located adjacent to or below Cochiti Dam, caused by seepage from Cochiti Dam.

These claims are for damages incurred by individual Cochiti farmers for the calendar years 1976, 1977 and 1978. Claims for 1979 will be submitted shortly, as soon as sufficient data is available from the farmers and the Bureau of Indian Affairs.

Any further claim for permanent or temporary damage is specifically reserved for the Pueblo, for the reason that at this time it cannot be predicted with any degree of certainty as to whether the drainage system presently being constructed by the Corps of Engineers in this problem area will function as represented by the Corps. Should such drainage system effectively drain the areas in question, then it can be assumed there will be no further crop losses due to the high water table; to the contrary, should it not function adequately then we can expect additional crop losses in the years to come, and we will submit further claims as appropriate.

In submission of these claims, certain economic data was used, as follows:

1. ALFALFA - Design Memorandum No. 16, Detail Design Cochiti Farmland Subdrain System, July, 1979, prepared by your office, at page 4, sets forth that alfalfa will produce 1.25 tons per cutting, with an average of four (4), with alfalfa selling at $25.00 per ton. We have incorporated this data into all claims relating to loss or damage to Alfalfa crop.

2. PASTURE - Information provided by the Southern Pueblos Agency, Bureau of Indian Affairs shows that the carrying capacity of pasture land at Cochiti affected by the seepage is one Animal Unit Month (AUM) per acre, with an AUM value of $30.00, with an estimated pasturage season of five (5) months.

3. HAY - Precise economic data is not available for hay. However, the assumption is made that hay has an economic value of one-half of Alafalfa.

4. CORN, MIXED CROPS AND ORCHARDS - Precise economic data is not available for these crops. Therefore, the claim is based on a different theoretical basis, to-wit: A return on land value. We are assuming that the affected land, if alienable, has a value of $3900.00 per acre and that the investment of proceeds of sale would create an interest return of 10%.

The claim is made by the Pueblo as representative of the individual Cochiti farmers, whose names are attached to this claim on the summary sheet labelled Exhibit "A". At such time as the claim is adjudicated or settled, we would expect that both the Pueblo and the individual farmers would sign appropriate releases, in order to assure the Corps of Engineers that cumulative future claims for the same items are not filed.

Attachments to this letter, labelled, collectively, Exhibit "B", set forth the details of the claim of each individual farmer. Attached to this letter as Exhibit "C" is a resolution of the Pueblo de Cochiti Council authorizing the filing of these claims. Also attached for your information and to assist your office in processing these claims, is a series of maps showing the location of the tracts of land for which damage is claimed

Your prompt attention to these claims will be greatly appreciated. We will be available to discuss these claims with representatives of your office.

Very truly yours,

John M. Bowannie, Governor
PUEBLO DE COCHITI

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

10 January 1979

JAN 25 2 47 PM '79

Honorable Harrison H. Schmitt
United States Senate
Washington, D. C. 20510

Dear Senator Schmitt:

I am writing you because of your continuing interest in the irrigation canal leakage problem below Cochiti Dam. You will recall that many of the irrigators below the dam have complained that because of the clear water released from Cochiti Lake, the irrigation canals are having increased seepage losses resulting in loss of water as well as high water tables under the land.

As you know, I referred the question of Corps authority to line irrigation canals below Cochiti Dam to the Office of the Chief of Engineers (OCE) for a policy decision. I have been informed that the Corps of Engineers has no authority under existing laws to correct the leaking canal problem. This determination was based on the premise that one of the project purposes of Cochiti Dam was sedimentation control, and the Federal Government made no representations as to the quality of the water released from the project. Further, the problems being experienced by the irrigators are not caused by the construction of the Cochiti project but rather are due to the inability of the canals to transport water of any greater clarity than that which existed prior to the construction of Cochiti Dam.

It is OCE's view that any assistance provided through the Corps of Engineers must be provided for by special authority granted by Congress. An example of such special legislation is that obtained for the Niobrara, Nebraska drainage problem related to operation of Gavins Point Dam and Lewis and Clark Lake project (Section 213 of Public Law 91-611).

Honorable Harrison H. Schmitt 10 January 1979

I should note, however, that we do recognize there may be some liability for damages caused by the rise in ground waters immediately downstream of Cochiti Dam. This is more related to impoundment of water behind the dam than to the irrigation canal problems discussed above. In any event, we are continuing to work on a drainage plan for the Cochiti Indian farmland immediately below the dam with the expectancy that a design memorandum will be forwarded to higher authority sometime in March 1979. If the design memorandum is approved, construction of the drainage system will begin in early FY 80.

I appreciate your continuing interest in these matters and should you have any further questions in which we can be helpful, please do not hesitate to get in touch with me.

Sincerely yours,

BERNARD J. ROTH
Colonel, CE
District Engineer

Copy furnished:
Honorable Harrison H. Schmitt, Albuq, NM

U. S. ARMY ENGINEER DISTRICT, ALBUQUERQUE
CORPS OF ENGINEERS
FEDERAL BUILDING 517 GOLD AVENUE, S.W.
ALBUQUERQUE, NEW MEXICO 87103

IN REPLY REFER TO
SWALE
Comprehensive Easement, Cochiti Dam
and Reservoir

25 February 1965

RECEIVED
FEB 26 1965
UPA
BRANCH OF REALTY

Mr. F. D. Shannon
Land Management Realty Officer
United Pueblos Agency
Bureau of Indian Affairs
P. O. Box 1667
Albuquerque, New Mexico 87103

Dear Mr. Shannon:

Coordination between our departments for the past several years resulted finally in the viewpoint of the Cochiti Indians that the Pueblo would prefer to grant a so-called comprehensive easement in lieu of further attempts to develop an exchange of lands. This has been expressed in various ways in the respective resolutions adopted by the Indians. Our most recent coordination dealt with construction of the operations facilities, the Pueblo agreeing to grant a right-of-entry, as received with the General Superintendent's letter of 9 December 1964.

In reviewing the proposal for a comprehensive easement, our higher authority has concurred, provided an easement conveying the necessary latitude in support of the project requirements and undertakings is obtainable. This easement has been prepared and is attached.

The compensation named, in the amount of $153,350.00, was arrived at on the basis of a carefully prepared formal appraisal report. This confirms information given you that our regulations prevent delivery of a copy of this appraisal to your agency. Furthermore, we are under obligation to the United States Attorney not to divulge information considered privileged, as long as the possibility of condemnation would exist. At this point, we explain also that our higher authority has prescribed that, should negotiations for the comprehensive easement fail and condemnation is necessary, fee simple title will be specified in the Government's taking, rather than an easement interest.

We inclose a map, with boundary of the proposed easement red-lined, for clarification. There have been two slight changes from the maps

SWARE
Mr. F. D. Shannon

25 February 1965

previously furnished which occur just to the west of the spillway and just to the west of the central portion of the proposed embankment. These additions were necessary to afford construction latitude at these points. Attached to the easement is, of course, an appropriate description of Parcels 1 and 2, containing 4,671.11 acres and 325.90 acres, respectively. Our investigation discloses this includes 4,917.01 acres of grass land, 67 acres of irrigated land, three acres of orchard and ten acres of potential irrigated land. By way of improvements, it includes four small houses and 1½ miles of fencing. Ten acres of alfalfa are also included.

Following our recent telephone conversation, the foregoing offer is submitted to your agency initially for consideration and coordination with the Cochitis. Should a formal meeting be desired, information to that effect is requested. We will appreciate at least five days' notice of any meeting scheduled on the reservation.

The undersigned gained the impression that whether or not the instrument is submitted to your higher authority in Washington for approval will depend upon the nature of the document. In this connection, we would like your comment at an early date. Furthermore, if action will be taken locally toward finalization of the easement, we would like to be kept informed of the progress. While it is realized the instant requirements for construction are supported by the right-of-entry previously given, nevertheless we would like to finalize a settlement at an early date.

We are sending three copies of the easement, supported by descriptions, for your present purposes. Only the original requires execution and return for our purposes.

Sincerely yours,

H. K. SHADEL
Chief, Real Estate Division

2 Incl
1. Easement (trip)
2. Map

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

Engr Ltr
Cochiti Corps of Engineers

SWAED-TA

22 June 1977

Mr. Mark J. Stevens
Acting Superintendent
Land Operations Engineering
U. S. Department of the Interior
Bureau of Indian Affairs
Southern Pueblos Agency
P.O. Box 1667
Albuquerque, NM 87103

Dear Mr. Stevens:

In your letter of June 7, 1977 you requested observation well data at Cochiti Pueblo. The majority of the observation wells have been installed, however, locations and elevations for these wells have not been established yet. As soon as we complete our survey we will begin reporting observation well data to the Cochiti Tribal Officals and BIA.

Sincerely yours,

JASPER H. COOMBES, P.E.
Chief, Engineering Division

SOUTHERN PUEBLOS AGENCY
RECEIVED
JUN 27 1977
LAND OPERATIONS